

Open Research Online

The Open University's repository of research publications
and other research outputs

An Investigation Into Teachers' Perceptions Of Online Learning At An English Further Education College

Thesis

How to cite:

Rathe, David John (2004). An Investigation Into Teachers' Perceptions Of Online Learning At An English Further Education College. EdD thesis The Open University.

For guidance on citations see [FAQs](#).

© 2004 David John Rathe

Version: Version of Record

Link(s) to article on publisher's website:

<http://dx.doi.org/doi:10.21954/ou.ro.0000e8b9>

Copyright and Moral Rights for the articles on this site are retained by the individual authors and/or other copyright owners. For more information on Open Research Online's data [policy](#) on reuse of materials please consult the policies page.

oro.open.ac.uk

UNRESTRICTED

David John Rathe G0108667

**An investigation into teachers' perceptions of online learning at an
English Further Education college**

DOCTOR OF EDUCATION (EdD)

March 2004

[OPEN]

AUTHOR NO G0108667

Faculty of Education and Language Studies

Doctorate in Education

Library Authorisation Form

Please return this form with your bound dissertations.

Student: David John Rathe

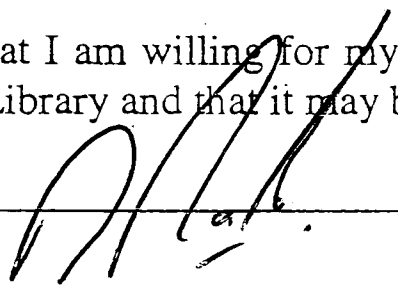
PI: G0108667

Degree: Doctorate in Education

Dissertation Title: An Investigation into Teachers' Perceptions of Online Learning at an English Further Education College

Open University Library Authorisation

I confirm that I am willing for my dissertation to be made available to readers by the Open University Library and that it may be photocopied, subject to the discretion of the Librarian.

Signed: 

Dated: 18/8/04

British Library Authorisation

If you want a copy of your EdD dissertation to be available on loan to the British Library Thesis Service as and when it is requested, you must sign a British Library Doctoral Thesis Agreement Form. Please return it as mentioned above with this form. The British Library will publicise the details of your dissertation and may request a copy on loan from the University Library. Information on the presentation of the dissertation is given in the Agreement Form.

The University has agreed that your participation in the British Library Thesis Service should be voluntary. Please tick either (a) or (b) to indicate your intentions.

(a) ☒ I am willing for the Open University to loan the British Library a copy of my dissertation. A signed Agreement Form is attached.

(b) ☐ I do not wish the Open University to loan the British Library a copy of my dissertation.

Signed: 

Dated: 18/8/04

ABSTRACT

The case study research investigated two aspects of online learning in a further education college. It was based on two key research questions:

1. Do the teachers in the college believe that development of online learning improves the teaching and learning process?
2. What are the main barriers that the teachers in the college believe are inhibiting the development of online learning?

Through the literature review, beneficial and detrimental effects of online learning development, and barriers to successful development were identified. Through a questionnaire, the views of teachers in the further education college on these effects and barriers were sought. Teachers were also interviewed to independently identify barriers to the development of online learning. From the college data and the evidence from the literature, conclusions were drawn.

The principal conclusion is that most of the college teachers believe that online learning development can improve the teaching and learning process if the identified barriers are successfully removed. In view of the current under-use of online learning in the college, which reflects the national under-use of online learning in the secondary and further education sectors, this is a very important conclusion. It shows that teachers in the college are not using online learning because of any concerns about its detrimental effects on teaching and learning but because there are barriers preventing them using online learning.

Teachers identified a lack of time to develop online learning as the main barrier to its adoption. Teachers also believe that staff development, focusing on the use of online learning to teach their own subjects, is critical. Poor access to online learning hardware was also identified as a significant barrier by the teachers, who agree that learning would improve if learning opportunities, including online, and resources were gathered together in curriculum-focused centres, supported by an adequate number of technicians. An inexperienced learner will, the teachers believe, need support as online learning requires students to acquire learning skills instead of

passively learning in classrooms. In particular, students will need to acquire new skills to be able to locate, select, assess and convert information from online sources into relevant knowledge and understanding. Teachers will need to support students in this process. They will also need to be gatekeepers of the quality and relevance of online information accessed by students. Actions to remove the barriers are proposed. Further research on whether online learning improves student achievement is suggested.

CONTENTS

	Page
CHAPTER ONE: INTRODUCTION	1
Profile of the FE college studied.	4
Why this study is of interest to the researcher.	8
Research Questions	11
CHAPTER TWO: LITERATURE REVIEW	13
Purpose of the literature review	13
Limitations of the literature	13
The changing context for learning, and constructivism	14
Constructivism and online learning	19
Benefits/detriments of online learning	24
Initial conclusions	32
Barriers inhibiting the development of online learning	35
Summary of barriers	51
Literature review conclusion	53
CHAPTER THREE: METHODOLOGY	57
Theoretical background	57
Validity	60
Ethics	62
Rationale for methods adopted	65
Why a case study?	66
Generalising from a case study	69
Data collection: questionnaires	70
Data analysis: questionnaires	74
Data collection: interviews	75
Data analysis: interviews	81
Conclusion	82

CHAPTER FOUR: DATA ANALYSIS	85
Questionnaire analysis	85
Interview analysis	106
Data summary	116
CHAPTER FIVE: RESEARCH CONCLUSIONS	124
Research conclusions	124
Implications of the research for the college studied.	139
Limitations of the research, relevance to further education, and opportunities for further research	146
Personal reflections on the research	147
REFERENCES	149
APPENDICES	164
Appendix 1 Questionnaire	164
Appendix 2 Letter sent with questionnaire	167
Appendix 3 Questionnaire analyses	169
Appendix 4 Letter to individual interviewees	181
Appendix 5 Letter sent to focus groups	183
Appendix 6 New college cluster	185
Table 1.1 Teachers' IT Training requirements	7
Table 3.1 Individual interviewee profiles	79
Table 3.2 Focus group interviewee profiles	80
Table 4.1 Online students take more responsibility for their own learning ?	86
Table 4.2 Online learning improves achievement and student motivation?	88
Table 4.3 Will the teacher's role diminish with online learning?	89
Table 4.4 Is learning more accessible online?	91

Table 4.5 Is communication improved online?	92
Table 4.6 Availability of information increases online?	93
Table 4.7 Individual learning opportunities increase online?	94
Table 4.8 Learning improves online ?	95
Table 4.9 Teachers' management of increased online information.	96
Table 4.10 Incorporating online learning into the core curriculum.	96
Table 4.11 Teachers lack IT skills	97
Table 4.12 Teachers' current concepts of teaching and learning	99
Table 4.13 Copyright and intellectual property rights	99
Table 4.14 Students will need support to change their learning style	100
Table 4.15 Students need new skills	101
Table 4.16 Accommodation for online learning	102
Table 4.17 Learning resources	103
Table 4.18 Technical support barriers	103
Table 4.19 Management	104

CHAPTER ONE: INTRODUCTION

The following reference demonstrates the commitment of the current government to develop online learning and its rationale for such a development:

“ E-learning [online learning] has the potential to revolutionise the way we teach and learn....and to bring high quality, accessible learning to everyone – so that every learner can achieve his or her full potential....It is also about the skills we increasingly need for everyday life and work. In the changing world of the knowledge economy, ICT skills will help to boost productivity and competitiveness. Young people expect to use leading edge technologies at school, college or university....I want all children and adults, all teachers and lecturers, all trainers and mentors, to experience the fantastic excitement of these new ways of learning and teaching...so we all work together to make e-learning at the heart of the way we all work.” (Charles Clarke, Secretary of State for Education and Skills, 2003: 1) in launching the Department for Education and Skills e-learning consultation document.

The above quote confirms that the development of online learning to support and enhance current teaching and learning has a high profile within the education sector, including further education. Significant amounts of funding are being directed to supporting the development of online learning on the premise that student learning will improve. The need to develop alternative ways of learning other than traditional classroom teaching was emphasised in the Department for Education and Employment White Paper “Learning to Succeed” (1999a), which states that:

“There is too much learning provision which is unsuited to the needs of learners. Many learners do not want to be tied to learning in the classroom. Many adults, in particular, are looking to learn in self-directed and flexible ways – in the evenings, in their places of work, at weekends and in their holidays.” (p. 17).

The important role of online learning in the provision of flexible learning, with its potential to widen participation and improve learning, was also highlighted in the Further Education Funding Council's influential 1996 *Higginson Committee Report*, which states that:

“The more effective use of technology will be a significant factor in making further education available to a wider audience and in making students' experiences exciting and relevant to their current or future working lives.” (p. 1).

As a direct result of the recommendation in this report, and in line with government priorities, £74 million was made available in 1998 by the Department of Education and Science to develop online learning in Further Education (FE) colleges. To qualify for this funding, each FE college was required, from 1999 onwards, to produce an annual Information and Learning Technology (ILT) Strategy, describing how it intended to develop online learning in the college, and to demonstrate that it was making effective use of its share of the £74 million development funding.

There has been continuing pressure to adopt online learning to improve the learning experience of students and to improve information technology skills. An example of this pressure is in the second report of the Department for Education and Science's influential National Skills Task Force (1999b), which recommended that:

“The use of IT should become integral to all publicly funded further education and training courses, with teachers and college lecturers having opportunities to bring their own IT skills up to date. By 2002 we would expect all publicly funded further education courses to use IT in some aspect of their learning.” (p. 68).

The importance of online learning development as part of its strategy to improve learning is further evidenced by the Government approach to its development in

schools. In 1997, the Government announced plans to encourage the widespread application of online learning in teaching and learning in maintained schools. The National Grid for Learning was created in 1998 to facilitate this development by providing schools with access to a network of links to websites offering learning resources, with £657 million funding over 4 years beginning in April 1998 for online infrastructure and generic training. In addition, from April 1999, £230 million Lottery Funds from the New Opportunities Fund (NOF) was allocated to help increase the competence of school teachers in their use of online learning.

All higher education institutions in the UK were required to have in place overarching communications and information strategies by 1999/00 (Dearing Report, 1997), which provides further evidence of the Government's belief that learning will improve if available online, while also reducing costs in higher education, thereby enabling universities to cope with the financial efficiencies required to fund the planned major expansion in HE student numbers.

There is, however, evidence that, despite it being a government priority, the use of online learning in education remains much below expectations. For example, its application is limited in schools. The National Grid for Learning Report (2002) states that almost two-thirds of schoolteachers questioned believe that computers have a high potential for teaching and learning, which suggests that one-in-three teachers do not agree. Furthermore, while almost half the teachers asked reported the daily use of computers for teaching, this use might however be restricted to the production of handouts on a wordprocessor. Half of the teachers therefore appear not to be using computers at all, even for this limited purpose. An earlier National Grid for Learning report (2001) provided another analysis of the use of online learning in schools and found, through classroom observation, that relatively few teachers are integrating the use of computers into subject teaching in ways that motivate pupils and enrich learning or stimulate higher-level thinking and reasoning. Classroom observations also indicate that, when teachers use computers in lessons, they often focus on basic skills with computers mainly used for routine wordprocessing, rather than higher order thinking and reasoning.

In further education, Powell and Davies (2001) found that the electronic storage and use of online learning materials by staff in FE was low in 76% of colleges investigated, with widespread use being reported in only 18% of colleges. Similarly, staff use of electronic storage for course documents was low in 74% of colleges, with only 20% reporting common usage and only 9% of colleges believe that students commonly access course documents electronically. However, 78% of colleges report common use of the Internet, with 22% reporting low use.

Profile of the FE college studied.

The college studied is a general English Further Education (FE) college situated in the Midlands. The college has two main sites, the larger in the town centre, where full-time and most part-time programmes are run, and the other at a nearby industrial estate where motor vehicle programmes take place. In addition, there are two subsidiary sites. The college took over a local work-based training provider in September 2000 following its financial collapse and now offers substantial work-based training. The college has four franchise partners based in the County delivering around 14% of the college provision.

The college has a wide curriculum provision, primarily in motor vehicle, engineering, construction, business and management, information technology, health and community care, early years, basic skills, tourism and leisure including sport, hairdressing and beauty. In 2001/02, there were almost 9,000 students of whom 1500 (17%) aged 16 to 18 and 7500 (83%) aged 19+. Most students, 8300 (92%), are part time students, many on programmes provided at various outreach and satellite centres in the locality. As a result of successfully recruiting part time students, only 625 (8%) of students are on full time programmes. Enrolments are broadly distributed by level but, of the students aged 16 to 18, the majority are on level 2 programmes (GCSE equivalent). Enrolments for students aged 19+ are mainly at level 1 foundation programmes, and level 2. The college provides work-based learning for approximately 500 learners in 9 areas of learning, but predominately in business, construction, engineering, hair and beauty, health and social care, and childcare.

In 2001/02 there were 95.13 full time and fractional lecturers with an estimated 53.29 Full Time Equivalent (FTE) lecturers on part-time contracts, a total of 148 FTE lecturers. In addition there are three senior postholders and six middle managers, and 117 FTE non-teaching support staff.

The college offers a wide curriculum portfolio in many programme areas. It has a regional and national reputation for high quality provision in Motor Vehicle Engineering with strong direct contacts with the industry that has been recognised through the award of Centre of Vocational Excellence status. Enrolments on information technology courses are among the highest in the college with provision offered from entry through to degree level, while the college offers a broad range of construction programmes and is well placed to support the expansion of skills training required by the industry. Of particular note is the accreditation of the gas training provision as a national centre and the growth in plumbing and carpentry. Early years, health and community care form an integral part of the college curriculum and are recognised as areas of growth in line with Learning and Skills Council labour market intelligence. Adult basic skills programmes are of specific importance to the college with a strong emphasis on diagnostic testing and subsequent support for all adult learners on programmes up to and including level 2 as well as discrete provision. Increasingly, basic skills learning is being integrated into vocational and work-based provision. Business and management is responding to the growth of banking, finance and insurance as well as the need to broaden higher level supervisory and management qualifications across all sectors. The college also recognises the growth forecast in tourism and the personal and protective service sector and continues to offer a curriculum portfolio in these areas. However, not all learners look to participate in traditional learning pathways and the college promotes an extensive community based provision and places a significant emphasis on work based learning, with its large Modern Apprenticeship programme.

The college's recently developed mission statement is: *Excellence and Innovation in Learning*. In introducing the term 'Innovation', the college is emphasising its intention to introduce new approaches to learning, including the development of

online learning. In seeking to achieve innovation in learning, the college believes that embracing new technology can enhance the students learning experience and broaden the range of teaching strategies available to teachers to improve their students' learning. The college has invested in an extensive online learning infrastructure that supports learning both on and off college premises. Four part time staff developers were appointed from existing teaching staff with a commitment to support and encourage the use of online learning within classrooms and workshops. Four hours per week per staff developer has been allocated to enable workshops and individual sectional support to be given.

The term 'Information and Learning Technology' (ILT) reflects the development of IT beyond its use for online learning. As required by the Learning and Skills Council, the college published an Information and Learning Technology (ILT) strategy for 2001/02, which, in summary, identified online learning development as a priority in the college in a similar way as the government has done nationally, stating the same belief that the development of online learning would benefit student learning. Similarly, as had the government nationally, it also stated that the development of online learning would receive additional funding to assist the achievement of the college online learning objectives.

However, as stated earlier, the documentary evidence referred to above (p.3) suggests that the use of online learning to support pupil and student learning is still largely undeveloped in all education sectors. Following a review of the achievement of its 2001/02 ILT Strategy priorities, it is particularly interesting to note that the college studied also found that the use of online learning to support learning in the college is underdeveloped, despite the high priority and additional funding also provided at college level. For example, an important objective in 2001/02 was to ensure that all staff met the level of competence in online learning specified in the ILT Strategy. To achieve this, the college staff developers arranged a series of online learning development workshops during the 2001/02 college year. Although there are more than 148 FTE teachers (around 300 individual teachers) in the college, only 41 attended any workshop sessions in the year. There was no record of how many

teachers had in fact acquired the planned level of competence. The college acknowledged that this objective had not been achieved. Furthermore, the ILT staff development programme was intended to improve the competence of teaching staff in the use of online learning, establishing an initial benchmark of online learning usage. There was, however, insufficient evidence of online learning usage in the classroom to establish such a benchmark. In addition, all college teaching staff had their teaching observed in 2001/02. Targets were set in the ILT strategy for 75% of lessons observed on the main site to have utilised online learning, 50% in college outreach centres with IT facilities and 25% in outreach centres without IT facilities. None of these targets were met. Unfortunately no record was kept of the actual percentages achieved.

In 2003, the college asked all of its full and part time teachers, excluding IT teachers, if they had any online learning training needs. The findings, summarised below, emphasise the extent to which they are currently unprepared for online learning.

Table 1.1: Teachers’ IT Training requirements

Procedure	% Stating Training Required	
	FT Teachers	PT Teachers
Accessing the college Intranet	35%	68%
Contributing to and accessing subject materials on the Intranet	70%	83%
Search the Internet effectively	40%	50%
Using search engines	45%	58%
Create interactive learning materials	96%	92%
Using smartboards	84%	95%
Using proximas	74%	95%

The 2001/02 ILT Strategy identified a number of objectives relating to the development of the online learning infrastructure in the college. For example, the college aimed to extend the college network to the major outreach centres, and to maintain the number of PCs available to staff and students at a high ratio. It aimed to

maintain IT technical support at a high level, and to achieve 95% reliability of the academic network. It aimed to significantly increase the number of laptops available to teaching staff; to provide specialist IT resources to students on advanced and higher level IT qualifications; to purchase additional servers. Proximas and smartboards were to be purchased. All of these IT infrastructure objectives were achieved. The college therefore continues to be well resourced in terms of ILT hardware and software, significantly exceeding the minimum specifications suggested by the Learning and Skills Council.

While all of the college objectives related to improving and developing the ILT infrastructure were achieved, those relating to increasing the use of online learning to support learning and to enhance the capacity of teachers to use online learning effectively in learning situations were not. This finding suggests that the college situation mirrors the evidence of the national position that online learning is not being used to any significant degree in classrooms to support learning, despite funding initiatives which have much improved the capacity of educational institutions to provide effective online learning infrastructures. This suggests that the problem of under-utilisation of online learning might not be one of insufficient/ineffective online learning infrastructure, but more related to the ability and/or willingness of teachers and lecturers to use online learning in the classroom.

Why this study is of interest to the researcher.

As the principal of the college, the answers to these research questions are extremely relevant and important to me. There were however other, more personal, reasons why I am interested in the research topic. I have been interested in open, non-traditional, learning for some considerable time, based primarily on my own learning experiences. I repeated my GCEs at grammar school because of disappointing results, finally leaving with five GCEs. In employment, however, I became aware of the potential, initially financial, benefits of qualifications, and subsequently obtained, through the Open University, BA and MA degrees. I also obtained an M.Ed. at the

University of North Wales, through occasional weekend attendance, with the majority of the course completed at home through directed study.

I had, therefore, obtained three degrees in a fairly non-traditional way. Having worked in FE college administration for 15 years, I became a college lecturer in 1982. Having been largely personally unsuccessful in learning through traditional methods at school, as a teacher I became particularly interested in an approach to learning where students did not rely primarily on the teacher to provide information, but acquired that information from other sources, known as 'open learning'. 'Open learning' has been defined as enabling learning to occur at a time, pace and place convenient for individual learners (Calder and McCollum, 1998). I therefore adopted 'open learning' techniques as my principle teaching/learning strategy, developing paper-based open learning materials for much of my teaching, including a period as an IT teacher when I managed student learning of IT on a mobile technology unit. This meant that my students could proceed at their own pace using the learning materials I designed, with the additional benefit of having me present to supplement the material on an individual basis when needed. Students could, if they wished, work at home with the materials, completing earlier as a result. Students were largely successful in adopting this method, with the added benefit that many did complete their course early and could give more time to their other subjects.

My own experience of using open learning techniques was, therefore, that students were able proceed at their own pace, calling on tutor support only where the learning materials required further explanation. Most students needed support at some time, and those who completed the programme completed at different times. For example, students with access to a computer at home could use the materials there, enabling them to finish the course even earlier. These experiences led me to believe that an 'open learning' provision with tutor support available on demand was an interesting model for learning which warranted further investigation should the opportunity arise. This research programme has enabled me to conduct such research to a depth not hitherto possible. With the increased availability of information through new technology since my earlier experience with open learning materials in the 1980s, it

seemed entirely appropriate to focus my study of 'open learning' on the role of online learning in supporting learning.

However, there is much evidence from the documents discussed earlier to suggest that at both a national and college level either teachers do not share my belief in the benefits of open learning through online learning, or, if they do, there are barriers to their using online learning which need to be identified and removed if online learning is to be successfully developed. I hope that this research in a college of further education will provide additional evidence on these issues. The research will also enable me to approach the development of on-line learning in the college with an improved understanding of whether college teaching staff believe its development will improve their student learning, from which the level of their support for online learning should also emerge. It will also help to identify and prioritise any barriers that might be inhibiting the development of online learning in the college, which would enable the college to develop strategies to remove the barriers in order of priority. Of course, I also have to accept that, if the research were to show that college teachers were not supportive of the development of online learning, I would need to respect those views and adjust college policy and strategy accordingly. The research is therefore very important to the college and its future approach to learning.

For the purpose of the research, I have used the term 'online learning'. 'Online learning' refers to: accessing teachers notes and learning software packages through the college IT network and the Internet; accessing specific education websites through the Internet; accessing the Internet to find appropriate information to support student learning; using e-mail and e-conferencing to support student learning. The research is not concerned with the use of online learning to support students enrolled on distant learning courses, but only as an enhancement to college-based courses, where students are organised in groups, with learning led by a teacher, with whom they are in regular, personal contact. According to Guri-Rozenblitz (1993), distance learning refers to learning where attendance at classroom sessions is not the main learning arrangement. As Calder and McCollum (1998) observe:

“distance education and open learning are not interchangeable terms, for distance education does not necessarily embrace openness in terms of pace or access.” (ibid:13).

Tight (2002) refers to the ‘quasi-separation’ of the teacher and the learner through the period of the learning process as a further characteristic of distance learning.

This study is, therefore, not about the use of online learning for distant education, but more about ‘open learning’ where college students, while still primarily working in groups with a teacher, can nevertheless work at their own pace and in their own time in addition to timetabled periods with a tutor, and in other places with Internet access, including from home, therefore concurring with Calder and McCollum’s (1998) definition of ‘open learning’ in enabling learning to occur at a time, pace and place convenient for individual learners.

The term ‘online learning’ is used as a generic term throughout this report for the use of new technology to support learning, encompassing terms used in the literature such as information and learning technology (ILT); information and communication technology (ICT); e-learning; communication and information technology (C&IT); computer-based learning (CBL); computer-based teaching (CBT).

Research questions

The College ILT Strategy for 2001/2 expressed the college’s belief that a proactive approach to online learning/ILT would enrich the learning experience of students, improve the quality of teaching and allow flexible access to learning. If the college belief is valid, and if online learning were to achieve all of these objectives, it would be difficult, if not impossible, for teachers and lecturers not to support the development of online learning. However, is the failure of lecturers in the FE college studied to embrace online learning because they do not share the college belief that online learning enhances the student learning experience, improves the quality of teaching and allows flexible access to learning? To answer this question, or at least to

provide additional information to assist such a question to be answered, the first research question is therefore:

In the FE college studied, do the teaching staff believe that the development of online learning would improve the teaching and learning process?

However, it might be the case that teachers are not using online learning to support their student learning because of the existence of barriers which are preventing them using online learning. To discover if this is the case and, if so, to identify what the barriers are, provides the rationale for the second research question, which is:

What are the main barriers that teachers believe currently impede the development of online learning in the FE college studied?

The literature review that follows provides the theoretical framework into which the research can be placed. It identifies what others have written on how the development of online learning benefits or diminishes teaching and learning, as well as barriers that need to be removed if online learning is to be successfully developed. Questions thereby emerged which formed the focus of the college research.

CHAPTER TWO: LITERATURE REVIEW

Purpose of the literature review.

The literature review provides a theoretical framework into which the research can be placed. The research is concerned with the teachers' perceptions of online learning in a college of further education. Initially the research considers whether teachers believe that the development of online learning would lead to improved teaching and learning in the college studied. This chapter therefore reviews the theory on the effects of the development of online learning on teaching and learning. This review enables me to seek the views of college teachers on each of the identified effects and to draw conclusions on whether, on balance, they believe that the development of online learning will benefit teaching and learning in the college studied. This chapter then reviews the theory about issues that need to be addressed if online learning is to be successfully developed, enabling me to seek the views of college staff on each of these issues. This information enables me to identify, in priority order, barriers that will need to be removed if any subsequent development of online learning is to lead to more effective teaching and learning. The literature review also facilitated the development of an appropriate research methodology.

Limitations of the literature.

According to Coomey and Stephenson (2001), the literature relevant to the development of online learning is limited. The reasons, the authors conclude, are that, first, many recent developments of interest have not yet been reported and, second, that research conducted before the late 1990s is no longer relevant, as earlier levels of Internet usage did not have the benefits of the high level of access now possible. Where research had been conducted, they found samples to be small, with little information on important issues, such as the lack of information about the level of new technology experience of the teachers and students involved in research. Such experience, if high, might have produced findings that were not relevant to situations where learners and teachers do not have that level of expertise. Following a similar

literature review, Phipps and Merisotis (1999) also concluded that much of the research into the development of online learning was of questionable quality where, for example, improvements in pedagogical practices were claimed through the adoption of online learning, but where the evidence base for such conclusions was often found to be weak. There was little use of independent measures to support any evaluation of the effectiveness of online learning. Jackson and Anagnostopoulou (2001) provide a possible explanation by suggesting that it is tempting for researchers who have little understanding of how pedagogical changes can affect learning to conclude that it is the technology itself which has brought about the change in learning.

However Coomey and Stephenson (2001), with reference to their research, conclude that, nevertheless, there is still much useful evidence between the late 1990s-2000 that was “rich and varied, and sufficient to give an indication of what might be happening more generally” (p. 38). I believe that the literature review that follows is similarly useful, despite the existence of many of the limitations described above.

The first part of the literature review considers whether the development of online learning is beneficial or detrimental to teaching and learning, with a view to answering the first research question, which is:

In the FE college studied, do the teaching staff believe that the development of online learning improves the teaching and learning process?

The changing context for learning, and constructivism

The question for the college studied is whether the development of online learning could improve teaching and learning. The first issue, therefore, is to consider whether the literature provides sufficient evidence to suggest that online learning development would enhance the approach to learning based on constructivism currently adopted by the college.

“Constructivism is basically a metaphor for learning, likening the acquisition of knowledge to a process of building or construction” (Fox, 2001:23).

Constructivism, it is argued, can be contrasted with traditional teaching which sought to “transmit fixed, well-structured knowledge with a firm external control of content, sequence and pace of learning” (Lewis, 1999: 142).

Lewis (1999) suggests that a principal reason for the wide-spread appeal of a constructivist pedagogy is that the globalisation of the economy and the resulting increased international competition is requiring workers to be more flexible and independent, capable of making their own decisions within a corporate framework, able to assume new roles and responsibilities as the work demands change. Hence the critical need for independent learning skills as well as core capabilities such as team working, communication and problem solving. In response to such social changes, and not because of new technology, approaches to teaching are also undergoing a change, as students now need to develop a range of high-level personal skills related to flexibility, critical thinking, communication, self-managed learning and adaptability, as well as developing confidence in using new technology (Lasonen and Stenstrom, 1995; Ruohotie, 1996; Townsend *et al*, 1999). According to Mallinen (2001), such skills cannot be taught: they must be learnt and, as they now need to do more than prepare students for particular jobs, schools and colleges need to increasingly adopt approaches to learning that enable students to make appropriate decisions in new situations.

The constructivist pedagogy is, it is therefore argued, more relevant to these new demands, where learners will learn how to learn, thereby becoming proficient in the process of constructing knowledge (Hodgson and Spours, 1999; Lewis, 1999; Watkins and Mortimore, 1999). In the constructivist approach, learning tasks are designed which are: authentic; highly relevant to the work and social context and to skills and knowledge required; conducted in an educational environment; related to real work activities; include elements which reflect this social context, recognising

that individuals work with others in a work environment (Mayes, 2001).

Constructivism argues that, as humans routinely learn from their experience throughout their lives, experience provides both the stimulus and the foundation for learning, with learners actively constructing learning based on their significant involvement in their learning activities (Alexander and Bould, 2001). There is also evidence that indicates that there is now much agreement by educationalists in favour of an approach to pedagogy based on constructivism (Jonassen and Land, 2000; Learning and Skills Council, 2002; Mayes, 2001; Schlais and Davis, 2001).

Research on a large sample undertaken by Yair (2000) tends to support the importance of authentic tasks, a key feature of the constructivist approach. Yair found that authenticity, choice and skills significantly affect students learning experiences. Without them, teaching was uninspired and students became bored. Yair's research concluded that the traditional teaching methods adopted in the study tended to demotivate and thereby disaffect students. Yair's study further concluded that students had very different experiences in the same school depending on the approach to teaching adopted by teachers, with some teachers providing challenging and authentic learning activities, while others use strategies which students find uninspiring and boring. Yair's study concludes that teachers, and the approaches they adopt, clearly make a difference to the success of teaching and learning.

Further evidence of support for the constructivist approach is provided by Beaty *et al* (1990) who identified particular goals of learning: increasing knowledge; memorising and reproducing; applying; understanding [concepts]; seeing something in a different way; changing as a person. Beaty *et al* (1990) however drew a sharp distinction between the first three goals, which are all linked with a traditional view of learning as a passive experience, whereby students merely receive and absorb knowledge transmitted from the teacher, and the final three, which reflect the constructive approach that involves the deeper and improved learning process already described. These emphasize the importance of students constructing their own understanding from the knowledge they have acquired. Marchionini (1999) supports the constructivist approach by reflecting on the role of information-seeking in the

learning process. He believes that traditional, formal learning environments are geared towards merely providing information for learners, a process which:

“abbreviates the full learning experience.....strong motivation and deep learning result when instructional tasks that develop and practice information skills are embedded in interests and applications relevant to the learner” (Marchionini,1999: 20).

However, there are criticisms of constructivism. For instance, Fox (2001) criticises the constructivist claim that effective learning is an active process, arguing that learning also occurs reactively.

“We do things and have things done to us; we act and react, and clearly we can learn from both types of experience” (Fox, 2001: 24).

He argues that too great an emphasis on ‘active’ learning risks ignoring the contribution that a teacher can make to effective learning as a “valuable, knowledgeable resource” (p. 24). Furthermore, teachers need to adopt strategies which students “find interesting or engaging: ‘activity’ alone will not suffice” (ibid: 33).

This supports Yair’s (2000) conclusions discussed earlier on the importance of teachers if learning is to be effective.

Beatty *et al* (1990) describe increasing knowledge, memorising, reproducing and applying as passive learning activities. However, for many learners of practical skills found in FE colleges, training to be plumbers, accountants or hairdressers etc., it is vital that they learn such skills (increase their knowledge), are able to reproduce those skills when required to demonstrate competence (memorise and reproduce), and are competent in employment as trained plumbers etc. (applying). Students acquire such learning by ‘passively’ watching their tutors demonstrating such skills, which they are then expected to reproduce through activity to a level that makes them employable.

Further practice is then needed in employment to acquire expert skills. This process supports Fox's (2001) premise that learners need to both react and act if learning is to be effective. This learning experience should be enhanced so that the 'constructivist' elements of learning described by Beaty *et al* (1990) of understanding [concepts], seeing something in a different way and changing as a person are also achieved. As Fox (2001) remarks "to memorise without understanding is pointless...to understand without ever remembering is equally useless" (p.32). No one would want to employ a plumber who could only understand why a leaking tap was a problem but couldn't remember how to fix it! Both aspects are needed.

Fox (2001) also criticises the constructivist claim that all knowledge is socially constructed, whereby learning is only determined by social factors, which ignores the influence of individuals' personal perceptions and memories as relevant factors. He refers to individual scientists who, through their own efforts, have made important discoveries that have extended scientific knowledge.

"To focus on teaching as a shared construction of knowledge also risks ignoring the extent to which learning depends on independent practice and problem-solving." (Fox, 2001:30).

Terwell (1999) considers the issue of teachers and students 'constructing their own knowledge', and concludes that "they may get disconnected from the subject-matter fields" (p 198). Trainee plumbers can only construct their own knowledge as part of a learning process that enables them, collectively and as individuals, to acquire the pre-stated knowledge and practical skills they need to become competent plumbers. It is just not possible to construct any 'other' knowledge.

Terwell (1999) believes that:

"no single theory provides an adequate foundation for educational practice...educators need to create a...'polyfocal conspectus' which unites elements from multiple theories, along with heuristics drawn

from experience, into a coherent basis for action.” (Terwell, 1999 :196).

Constructivism and online learning

Does 'constructivist' learning improve when online?

According to Alexander and Boud (2001), the use of technology in learning has been driven more by the desire to explore the limits of the technology than by an understanding of how its development influences and improves learning. The use of technology in itself does not improve learning. Furthermore, evidence from Whitlock (2001) suggests that many strategies for online learning are merely attempts to find a use for applications which were developed for another, non-educational, purpose. However, according to Jackson and Anagnostopoulou (2001), while it would be misleading to assume that the adoption of online learning will automatically bring about an improvement in learning, there are strategies which could improve learning using online approaches. For example, online learning could improve learning if it focuses on the specific learning needs of a group of learners in a particular learning context, which is a traditional approach to improve learning. This approach recognizes the importance of the situated nature and the complexity of learning. However, there seems to be little evidence, Jackson and Anagnostopoulou (2001) conclude, of this approach having been adopted where online learning has been developed. Furthermore, they also believe that the theories of learning referred to in much of the literature on online learning fails to recognize the importance of how students approach a learning task, which is largely context specific with a range of different factors coming into play in effective learning situations. It is, as a result, almost impossible to reach specific conclusions on any improvements that the development of online learning can bring to teaching and learning, as what works in one context may not work in another because the underlying conditions of each learning situation are likely to be different. “This means that many of the assumptions underlying the development of online pedagogy are up for question.” (Jackson and Anagnostopoulou, 2001: 54).

However, the development of online learning could nevertheless facilitate a movement away from traditional, teacher-centred, delivery towards the constructivist approaches favoured by educationalists (Coomey and Stephenson, 2001; Jonassen and Land, 2000; Learning and Skills Development Agency, 2001; Mayes, 2001). Lewis (1999) believes that the increased availability of information through new technology is very supportive of the constructivist approach, which he believes is appropriate if learners are to cope with the changing context in which they now have to live and work. According to Mayes (2001), the development of online learning will not require the development of new pedagogies, but may, if properly managed, provide new opportunities to deliver existing pedagogy more efficiently and flexibly. For example, Goldsworthy (1999) identifies 5 categories of uses of technology in a learning process. Learning can be considered as occurring: (i) *from technology*, where learners can be supported in their learning by having content explicitly taught by a software package; (ii) *with technology*, where technology increases an individual's capability and efficiency when working with other materials, focusing on technology as a tool and including a range of supportive devices such as word processing, statistical and multimedia authoring packages; (iii) *around technology*, where, for example, team-work using computers mean that students can learn as much from their interactions around the computers as they do from their interactions with them; (iv) *through technology*, where learning occurs primarily through the interaction of learners at a distance mediated by computer technology such as e-mail and online chat groups, electronic discussion groups and bulletin boards where participants are possibly learning more from each other than they are from the computer itself; (v) *technology supported management and assessment*, where, in addition to supporting learning directly, technology can be used to facilitate the management of learning.

Watson (1993) and Stradling *et al* (1994) believe that students using computers are able to spend more time and effort attending to higher-order skills, such as analyzing data, rather than routine skills such as recording and presenting data.

Does learning online support the constructivist approach by enabling students to take more responsibility for their own learning?

There is a shift towards teaching and learning approaches based on the principles of constructivism, with a move away from teacher-centred control of learning towards a situation in which students become more responsible for their own learning activities. (Barker, 1999; Learning and Skills Council, 2002; Schlais and Davis, 2001). Online learning could support such a transition. For example, Cuban's (1993) research concludes that using computers in learning supports more self-directed learning, with students becoming more active learners who are assisted by teachers to construct their own understanding. Fayter (1998) reports that some students considered that they were more involved in the learning process through the use of the Internet than when sitting in traditional lectures, and thereby move from being passive to more active learners. As a result, the students took more responsibility for their own learning using learning materials instead of over-relying on teacher input. Similarly, Somekh and Davies (1991) focus on the relationships found in the classroom, where traditionally students rely on the teacher to provide knowledge and information. They conclude that using a computer, which provides an alternative source of knowledge and information, reduces this reliance as students can use software to control and pace their own learning, taking a more active role in constructing knowledge rather than the more passive role of receiving it. Ali and Franklin (2001) found that students who previously were nervous about asking questions in class found the Internet to be a quiet, private replacement for the teacher while students also benefited through being able to work independently through the Internet when the tutor was supporting other students.

There is, however, an alternative view that, as online learning requires students to take more responsibility for their learning, its development is detrimental to the learning process as it results in less structure to learning, disadvantaging the novice or unsophisticated learner. A study in an FE college by Leathwood (1999) found that most lecturers interviewed believe that the majority of students would struggle with

the extra responsibility of being independent online learners, which fails to take into account of their individual learning needs or learning styles. Furthermore:

“[there is] an increasingly large number of students for whom transient employment, low pay, short-term contracts and poor training facilities at work are a stark reality. For such students, self-directed study and distance learning do not necessarily offer them the type of learning experience they need.” (Brunt, 1997:30).

Students may therefore be disadvantaged by the expectation that online learning will require them to work on their own, with less contact with tutors. This may create isolated and unsupported learners, particularly those using the Internet to learn. Sinclair (1998) is particularly concerned about the loss of face-to-face interaction and the negative effect of this loss on student support.

“To supplant or mediate this vital component of the learning process is to offer, at best, a pale shadow of the richness that arises from contact education.” (p. 297).

The importance of face-to-face learning experiences was also recognised in the Dearing Report (1997), which states that, when free to choose, individuals are likely to opt to learn in the company of other students in the presence of a tutor who can personally support their learning.

Learning online will only improve teaching and learning if teachers recognise that each student needs different amounts of support and independence, emphasizing the need for appropriate preparation before online learning materials are used by learners (Calder, 2000; Kirkup and Jones, 1996; Tait, 2000). It is vital, therefore, to structure a learning programme that enables individual students to control the extent to which they wish to work in isolation and yet provide sufficient support appropriate to the needs of the individual learner. Otherwise, as Noss and Pachler (1999) note, the benefits of learning online would be significantly diminished if

“learning becomes de-humanised, learners becoming or remaining isolated, suffering from information overload” (Noss and Pachler, 1999:204).

The role of the tutor is paramount in designing and facilitating appropriate learning activities for each learner, whether online or traditional. Learning might therefore improve where teachers use online learning to make the transition from traditional teaching approaches to more constructivist approaches by replicating good classroom practice. Students would then take an active role in the learning situation, self-identifying their learning needs, being involved in identifying their own learning strategies and objectives. Such an approach recognises that the more students are involved the possibility of improved learning is enhanced (Mallinnen, 2001). Phipps and Merisotis (1999) also conclude that student learning is less affected by new technology than it is with factors such as learner tasks and characteristics, student motivation, and the teacher.

Online learning is therefore merely another medium for teachers to deliver teaching and learning. A teacher might choose an appropriate teaching/learning strategy for a particular learning task and situation, and might then look for ways that online learning might enhance that method. Stephenson (2001) therefore suggests that

“a re-balancing of the range of pedagogies in use is slowly taking place as more people begin to exploit the full range of facilities that the medium can offer. The re-balancing being stimulated by online learning is towards giving learners greater responsibility for managing their own learning.” (p. 219).

There is, nevertheless, the potential for too much flexibility and insufficient structure to result in a situation where “an unsophisticated learner, in particular, may struggle and fail” (Kirkup and Jones, 1996:278).

Are there other beneficial or detrimental effects of learning online which might affect its use by teachers?

O'Banion (1997) makes the obvious, yet important, observation that technology will be unable to transform teaching and learning unless teachers actually use it for teaching. Hodson *et al* (2001) report that the more enthusiastic the teachers are in directing students to online learning material, the greater the use of such material and the higher the level of student satisfaction. Therefore, if online learning is to be successfully developed, there clearly needs to be a pedagogical rationale for its development that will convince teaching staff that the effort required to undertake staff development and to use online learning is worthwhile. The earlier review of the literature on effects of online learning on constructivism posed a number of questions which teachers would wish to consider in deciding whether to adopt on-line learning. Other questions emerging from the literature which teachers would probably also need to consider are now considered.

Does online learning improve achievement and student motivation?

Arguably, the most significant benefit that the development of online learning can bring is that it improves student achievement. However, I did not find any literature evidence on further and higher education that online learning has any effect on student achievement. In fact, in the further education sector “there is still little evidence of systematic evaluation of the impact of online learning on learning” (Powell and Davies, 2001:45).

The literature on student achievement for primary and secondary schools is restricted to that produced in three reports for BECTA (2001a; 2001b; 2001c) by an independent consortium of academics from the University of Nottingham, the Open University and Manchester Metropolitan University. The findings of these reports indicate that, while high users of ICT [online learning] do perform better at SATs and GCSEs, in most cases the measured improvements in attainment are too slight to be of statistical significance.

A study by Taylor Nelson Sofres-Social (2001) provides some limited evidence that online learning can improve student motivation, concluding that the unmotivated and that even those who described school as 'dull and boring' often found ICT-focused lessons interesting. National Grid for Learning research (2002) similarly concludes that the experience of learning could become more enjoyable as learners are provided with opportunities to use imagination and inquisitiveness for creative expression. Ali and Franklin (2001) found that students found learning through the Internet, with access to its combination of visual, graphics and audio information sources, to be interesting and fun.

Overall, however, there is insufficient literature evidence to yet establish whether online learning improves student motivation or achievement.

Will the teacher's role diminish with online learning?

The move to online learning and the increased responsibility for students to manage their own learning that will result may have the negative effect of diminishing the role of the teacher. Some teachers believe that computers and resource centres were being used to drive down teachers' hours to try to save money, and the provision of learning packages will remove their responsibility for the management of learning (Further Education Funding Council, 1996). Kirkup and Jones (1996) state that the development of online learning could make teachers redundant without being replaced with a "resource offering the same facilities" (p.288). They also conclude that teachers who seek to avoid the development of online-learning may have a legitimate basis for their concern:

"computer-assisted learning has been seen as a way of adding non-human resource into a classroom, hopefully at less cost than a human teacher" (Kirkup and Jones, 1996:287).

O'Banion (1997) reports that teachers believe that the development of online learning will result in their contact with students diminishing, to the detriment of learning.

Ali and Franklin (2001) also identify some negative effects on teachers' roles and relationships when the Internet was used to support learning in the classroom, such as reduced interaction between students and the teacher in that few questions were asked of the teacher and discussion between teacher and students was rare. While this in itself was not necessarily negative, as long as students were learning effectively, there was evidence that this was not the case. For example, students hardly responded to the teacher's questions and comments due to their focus on searching the Internet. Students often worked on their own, ignoring the teacher's teaching. This had the effect of undermining the teacher's confidence in his own competence and skills. This confidence was further undermined when students appeared to already know what the teacher was teaching as a result of being able to access relevant and appropriate information from the Internet, and hence his role was not as significant. As a result the teacher's authoritative control of the class, which is witnessed in traditional classrooms, was challenged. The Internet therefore affected the instructional style of the teacher where, unlike the traditional class where the teacher is the *de facto* source of knowledge and controller of class activities, the Internet reduced the role and significance of the teacher. Students no longer felt that they had to rely entirely on the teacher in the class. However, although both teacher and students had misgivings about the use of the Internet in the classroom, they all recognise its potential.

However, to emphasise once again the range of contrasting evidence and opinions on the effects of developing online learning, Canning (2002) states that students will in fact need more tutorial support when learning online. In fact, according to Lewis (1999), the use of new technology to support learning will not reduce the importance of the lecturer's role, but will actually significantly enhance the role. Many lecturers currently complain that their excessive teaching load means that they are unable to properly undertake many important tasks related to successful student learning, such as teamwork, curriculum and learning materials development, improving employer

liaison, review and evaluation. The availability of new technology to support learning could create more time to carry out these important tasks.

Is learning more accessible online?

Online learning might be attractive to teachers as it enables learning to take place at a time, place and pace convenient for the learner. This aspect of online learning development would enable students to take more responsibility for their own learning which the earlier section on constructivism suggests could benefit learning. Lewis (1999) suggests this enables the learner to have a high level of control over information, having the capacity to replay on demand, to re-administer tests and to vary the way in which content is presented. The National Grid for Learning (2002) concludes that access to learning could also be provided remotely by world-class teachers and subject experts using online learning whenever and wherever needed. The potential benefits to the student learning experience of such flexibility are summarized by O'Banion (1997), who promotes the concept of a learning college as one which provides educational experiences for learners "anyway, anyplace, any time" (p. 47). In reaching this conclusion, he believes that learning should be designed for the convenience of students rather than that of institutions and teachers. It is difficult to argue with such a conclusion. A review of European funding projects finds that online learning changes the way that learning is delivered, with learning taking place where it is most convenient for learners (Beernaerts, 2001). There is also evidence of a consensus that the use of online learning would result in greater flexibility in where, when and how students studied (HEFCE, 1998).

Is communication improved when students learn online?

It was suggested earlier (p.23) that students might become isolated when learning online. However, Lewis *et al* (1997) believe that the capacity for online learning to increase student support through the use of e-mail to other students or to lecturers at any time is a great benefit in reducing such feelings of isolation. The use of computer conferencing also enables students to share ideas, experiences and opinions in a

flexible way, free from the constraints of time and geography. Students engaged in open learning do not therefore need to work in isolation. Internet communication tools, such as e-mail, electronic bulletin boards and chat rooms can facilitate student group work and student/tutor contact which will make learning more active (Doring, 1999; Fayter, 1998; Mallinen, 2001). Learners can locate others with similar interests, facilitating cooperative and collaborative learning opportunities that might not otherwise be gained (Schlais and Davis, 2001; Whitlock, 2001). Students can exchange ideas in real-time, reading what other students are writing, which enables them to reflect on their own understanding. The fact that students can remain anonymous in this process may make participation easier for students who may not normally join-in traditional classroom activities. Mallinen (2001) believes that students may find it easier to contact teachers through e-mail than face-to-face opportunities, and that feedback by the tutor to students, an essential part of the learning process, is also much quicker through e-mails, speeding up the learning process. Learning also occurs where students who might be struggling with an aspect of their programme are able to discover through chat-rooms etc. how other students understand that aspect, possibly enabling them to overcome their own difficulties (Mayes, 2001). Online debates and increased opportunities for role-play/simulations are other increased learning opportunities facilitated through new technology (Alexander and Boud, 2001; Hase and Ellis, 2001). The possibility of recording electronically all the questions, comments and dialogues of previous learners for the benefit of new learners is also suggested as an additional potential benefit (Mayes, 2001).

One caveat, however, to the many benefits to communication discussed above is the potential for an overload of social or irrelevant messages, with students complaining about the amount of time needed to read messages, and too much demand for interaction with other students (Mason, 2001).

Does online learning increase the availability of relevant and interesting information?

Marchionini (1999) believes that new technology information systems have changed the information process, significantly increasing the amount of relevant information available to support learning. For example, Marchionini suggests, virtual reality would enable some students to experience simulated dangerous working environments safely and at low cost. Access to global information and expertise is easily available on demand to students and teachers (Further Education Funding Council, 1996), while video-conferencing enables a traditional classroom to be experienced in remote locations (Whitlock, 2001). Electronic databases, including the Internet, allow learners to explore previously inaccessible material, search world-class libraries and bring a wide array of information into their learning arenas and research (Doring, 1999). Ali and Franklin (2001) found that students were able to obtain rich sources of online learning material including text, video and audio to support their assignments that could not have been obtained from text-books. Moro (1997) wrote:

“facts are now instantaneously accessible, they are no longer the first and foremost object of learning. Handling them is what matters” (p.73).

Doring (1999) emphasizes, however, the importance of learners knowing exactly how they will use the information they are seeking which will much increase their chances of purposeful searching. “Rather than surf, they need to be information-age hunters.”(p. 10).

There is however an alternative view that the development of online learning will diminish learning, as the focus will become the gathering of information. Gorard and Selwyn (1999) suggest that online learning development is in fact merely one of information transmission and cannot therefore be a genuine educational experience, nor can it develop, for example, better reasoning skills. In particular, Sinclair (1998) suggests that, as real teaching and learning involves much more than the mere

gathering and transmission of information, the potential is limited for online learning to provide the range of factors which pedagogical research suggests enhances learning activity, such as peer support, mentoring, feedback and assessment. Furthermore, the teaching and learning process is based on a whole range of activities such as mentoring, internalisation, identification, role modelling, guidance, socialisation, interaction and group activities, in all of which physical proximity plays an important role. This physical proximity is important, as the strength, for example of a university “lies less in pure information and more in the communal aspects of college life” (Sinclair 1998: 298).

Doring (1999) similarly considers there is a risk that the increasing use of the Internet as an alternative source of information and a means of distributing knowledge will continue without considering its effect on the learning process or the isolated learner. Online learning often merely replicates the existing system, treating learning as knowledge transfer, with old text merely transferred onto a web page, much of which is boring (Alexander and Boud, 2001; Schank, 2001). As Stephenson (2001) observes, this merely replicates the traditional pedagogical practice of many lecture theatres and classrooms, albeit with some savings in time and distribution costs.

A further concern is that students will waste their time searching for inappropriate activities and material. Students in one study developed a dependency on the Internet, turning to the Internet for information they already had, regarding the Internet as indispensable to their learning even when inappropriate (Ali and Franklin, 2001). The wide range of available content can therefore lead students into wasting valuable time by ‘surfing’ pages that are not relevant to their course (Ali and Franklin, 2001; Mudge, 1999). In addition, according to Mudge (1999), there is a significant danger of non-peer reviewed information taken as fact. As Ali and Franklin (2001) observe, there is no control with the Internet, as it is a free-for-all information source where anyone can publish online anytime. There is also concern that, if it becomes easy for students to download paragraphs or whole essays from the web, they will lose the ability to think for themselves (Dickinson and Stewart, 2001). Similarly, Cohen (1993) believes that, as IT becomes increasingly sophisticated, students will have

little incentive to develop basic numeracy and literacy skills and, as a consequence, are being deskilled.

Does learning online increase individual learning opportunities?

Ali and Franklin (2001) found that, in the traditional teaching they observed in their research, teachers did not individualize teaching to take account of the different needs of the student group, although there were novice and experienced learners in the same group. However, they also found that, when they examined the effects on students learning of introducing the Internet as a teaching/learning tool, each student was able to learn more independently according to their individual ability and preferred learning style. The National Grid for Learning (2001) also believe that online learning can facilitate a more individualised education where the effective use of high quality, digital interactive materials can focus the curriculum on the talents and abilities of individual pupils, allowing a student to pursue an independent line of enquiry. There is also support from Fayter (1998), who also believes that the Internet increases the range of available learning strategies, thereby enhancing the possibility of meeting individual student's preferred learning styles. An HEFCE report found that 83% of staff using online materials did so because their use increased the variety of learning strategies, with 58% believing that their use introduce novel ways to learn. 55% believed that the use of online materials also increased student autonomy in learning, increasing the range of learning styles they could accommodate (HEFCE, 1999a). Stephenson (2001) also identifies the availability of a choice of learning styles to meet the needs of learners as a positive feature of online learning. Davison *et al* (1999) similarly conclude that the development of online learning enhances opportunities for individual students to adopt the most appropriate learning style which supports their own preferred way of learning: "educational technology can have a positive role in catering for different learning styles" (p.13).

However, this positive development is diminished by the evidence that teachers tend to adopt own preferred learning style in developing students' learning material. This disadvantages those students whose preferred learning style is different to that of the

teacher (Davison *et al*, 1999). Moreover, according to Rosenberg and Lecuyer (2001), there are also concerns about the quality of information available in learning software, including its capacity to support the individual needs of students. This concern confirmed similar findings of the Further Education Funding Council (2000) and the Learning and Skills Council (2002) that courseware content was not always well matched to the ability of the student. Sinclair (1998) therefore believes that a 'virtual' provider of learning can only provide a standardised product that fails to address the existence of individual differences. Until there is the capacity to effectively diagnose the needs of an individual learner in a virtual environment and tailor an individual programme accordingly, that technology will only be seen as a "useful adjunct to conventional learning methodology and not a substitute for it" (Sinclair, 1998:298).

Does the development of online learning improve teaching and learning: some conclusions.

Helm (1997), in stressing the importance of integrating the better aspects of traditional and technology based teaching, believes that the key question to be answered to the satisfaction of people who doubt the benefits of new technology is:

"is teaching and learning with the new technologies as good as, or better than, the traditional methods – and why?" (p.43).

If the answer clearly supports the new technology, Helm(1997) believes it will generate the essential support from teachers. Sankey and Dibble (1997) support this position, believing that teachers must:

"forever ask [themselves] questions such as 'what is it about [learning through new technology] which would enhance the student's learning experience? What is the added-value? Does the technology get in the way of the learning?'" (p.69).

The use of new technology features in Calder's (2000) definition of best practice in teaching and learning:

“the combination of structure, educational technology and content of a learning opportunity which, in certain contexts and for particular groups of learners, is most likely to achieve the purposes of the main stakeholders.” (p.3).

MacDonald (2001) provides a useful analysis of the potential for online learning to assist in developing individualised, independent, self-directed learning. She believes that online learning should be welcomed as an effective means of improving all aspects of curriculum provision, where value is added by the combination of 'age old' pedagogy and the impact of the 'information age' technology, where the role of learners as active participants in the learning process is emphasised in an improved pedagogy which is less abstract than many of the experiences delivered by more traditional forms of learning.

“When coupled with the more traditional ways of teaching, the learning experience of students can be much enhanced [through the delivery of multimedia teaching modules via the Internet].” (Mudge, 1999:15).

It seems however that online learning raises more questions than there are currently answers for, which makes it premature to embrace it uncritically. The core question is about who gains from online learning? in which kinds of educational programmes? which sorts of people lose? and, very importantly, what is being gained and lost?

“there is a great deal more thinking to, and analysis to go on, before we can give up on the precious scepticism that underpins engagement with the world, not least for educators. This does not make us Luddites, but it might make us fall short of being simply enthusiastic at this stage about online learning.” (Tait, 2000:22).

In conclusion, Mayes (2001) summarises the current position well. He comments that the availability of online learning is causing a subtle change in the language used to describe education and training, with education increasingly being described as ‘delivery of materials’ or ‘delivery of learning’. This shift is a by-product of the perceived benefits of online learning, particularly accessing, structuring and presenting information. These capabilities, enabling, for example, the creation of virtual worlds for exploration, are compelling reasons for assuming that they provide powerful new educational paradigms. However:

“the evidence from the past is clear: new technologies, however effective in other fields, don’t inevitably lead to major change in education” (Mayes, 2001:17).

The real change in the way education is provided is not driven by new technologies or new pedagogies, but by new ways of organising and structuring learning, such as where and when learning can occur and be assessed and how resources are accessed, while:

“maintaining and enhancing the pedagogical principles that remain fundamental to almost all forms of learning....it is not new pedagogies we need, but new ways of providing existing pedagogy efficiently and flexibly. This may provide the real challenge for online learning ” (Mayes, 2001:17).

My own view is that it is only through the widespread adoption of online learning, and subsequent further research, that its effectiveness in improving teaching and learning can be properly assessed. There is, however, sufficient literature evidence to suggest that the use of online learning might improve the teaching and learning process, thereby justifying its continuing development followed by more research on its effectiveness (Ali and Franklin 2001; Calder 2000; Mayes 2001; McDonald 2001; Stephenson 2001).

Research question 2: What are the main barriers that teachers believe currently impede the development of online learning in the FE college studied?

The literature review to date has considered whether the development of online learning would be beneficial or detrimental to teaching and learning. This review enabled me to ask teachers in the college studied if they agree with the beneficial and detrimental aspects identified in the literature. As outlined in the Introduction, there is evidence in the college studied that the current use of online learning is underdeveloped, with little evidence of its use. However, assuming that teachers do believe that teaching and learning would benefit, there are probably barriers that are preventing the successful development of online learning. The identification of such barriers is therefore the focus of the second part of the literature review, which then enabled me to seek the views of the college teaching staff on the relevance of each of the barriers and to identify, in priority order, those that need to be removed if any subsequent development of online learning is to lead to more effective teaching and learning. Barriers identified in the literature as significant to the development of online learning are grouped under the headings of 'teachers', 'students', 'resources', 'management'.

'Teacher' barriers.

The role of the teacher will change.

The development of online learning may result in change in the role of the teacher. Teachers, however, may not be willing to change their role, thereby inhibiting the development of online learning. According to Lewis (1999), most teachers still continue to teach in the traditional way in classrooms and lecture halls, still regarding themselves as the prime source of information for students. More recent evidence reaches a similar conclusion. Pye Tait (2000), conducting research on the need for skills development in the further education sector, reported that, if the benefits to learning that could flow from the adoption of online learning are to be achieved,

teachers will need to change their current teaching style. The impact, Pye Tait maintain, on current learning arrangements is “expected to be massive” (Pye Tait, 2000:13). Mason (2001) states that the need for tutors to adapt their teaching styles to online learning environments is “surprisingly, still a significant hurdle” (p. 69).

Stephenson (2001) believes there will be:

“a major shift in emphasis away from the selection, processing and packaging of content from the teacher to the selection, processing and adaptation of materials by the learner” (p.222),

where the role of the teacher will expand to include systems management, managing collaborative learning, specification of learning materials, providing support and advising on quality. In support, Mallinen (2001) thinks devising and tutoring co-operative learning and self-directed learning opportunities will require more input from the teacher than that required solely for knowledge transmission, the traditional role of the teacher. Research by Sheffield Hallam University and the Learning and Skills Development Agency (2002) on behalf of the Learning and Skills Council similarly concludes that the role of the teacher will change, as the delivery of effective online learning opportunities will also involve teachers in: judging when online learning is the appropriate tool for a particular task and when it isn't; integrating online learning opportunities into their teaching; providing support and guidance in, for example, the choice of an appropriate range of traditional and digital learning resources. According to Hase and Ellis (2001), students will also need to be stimulated to get them involved in online learning discussions, which is very time-consuming for the teacher and will require staff development if teachers are to manage online discussion. Pye Tait (2000) comments on the need for teachers to understand the changes to existing pedagogy, requiring a more efficient and flexible approach, and thereby the need to change their style is “a fundamental training issue” (p.13).

Lewis (1999) also stresses the importance of ensuring that there is a full understanding by all staff involved of the new responsibilities attached to the new ways of learning online. Fayter (1998) similarly believes that teachers need convincing of the benefits of moving away from traditional curriculum delivery approaches as, if they are to effectively use online learning to support student learning, they must acknowledge and accept that their roles change to being a monitor and mentor instead of being the source of all knowledge. According to Lewis (1999), as lecturers will only use the Internet if they are convinced that it will improve student learning, there is a need to make lecturers aware of the benefits of its use, so that they can make their own judgement on whether the use of the Internet, for example, will add value to existing teaching methods.

Teachers will, nevertheless, retain responsibility for effective class management and a controlled environment, even when students are learning online. The teacher will also have to retain high expectations of student achievement, and a strong commitment to academic goals. Clear goal setting, structuring the curriculum content, clarity of presentation, frequent questioning, provision of evaluation and feedback will remain essential aspects of the teacher's role, even when learning is online. The role will not therefore be relegated to merely supporting online learning, but will involve helping learners maximise their understanding of, and improved learning from, the increased information that is now available (Mallinen, 2001; Noss and Pachler, 1999). The teacher will, however, become more flexible as classroom activity becomes more diverse and less planned, with a movement to less didactic and more open styles of teaching (Fisher, 1993; Schlais and Davis, 2001).

The increased volume of information available online needs to be managed by the teacher.

According to Doring (1999), the changed role of teachers following any development of online learning will require them to help students to learn effectively online. Students using the Internet for learning will need to learn how to acquire information online, and also how to turn that information into knowledge. Teachers need to be

able to access information electronically and then help the learner translate that information into knowledge. Because there is now so much information available electronically, teaching learners to assess and select from data, not just to gather it, is a key new skill. Teachers will need to help students develop the skills needed to be able to sift opinion and facts, useful and irrelevant information when accessing the Internet (Doring 1999). Teachers will be responsible for:

“promoting and ensuring information-literate students, just as they promote and ensure they are good readers, speakers and writers”
(Marchionini, 1999 p 24).

There is however a possibility that students could suffer from information overload due to the amount of information available on the Internet, to the detriment of their learning. As part of their changed role, teachers will need to be the ‘gatekeepers’ of the quality and relevance of online learning information to maximise effective learning (Noss and Pachler, 1999; Sinclair, 1998). The uncontrolled use of the Internet will therefore harm the learning process in the long run if its access is not controlled by the teacher to ensure students work on legitimate academic activities. Research by Sheffield Hallam University and the Learning and Skills Development Agency (2002) on behalf of the Learning and Skills Council, found, however, that teachers are not currently providing such support to online learners. Teachers should identify in advance lessons/activities that will necessitate use of the Internet and provide Internet search guidelines and skills at the beginning of the course and bookmark important sites for students (Ali and Franklin, 2001; Hase and Ellis, 2001). Noss and Pachler (1999) believe that learning through the Internet must be incorporated carefully into classroom instruction and teachers must guide students to minimise the Internet’s negative influence. The teacher will also need to provide “lead-in, interaction and exploitation tasks to render online learning material effective” (Noss and Pachler, 1999:203), as “fractional information on the Internet does not result in understanding if students have no prior knowledge of the subject” (Mallinen, 2001:145).

However, Hase and Ellis (2001) have an alternative view that independent learners should be encouraged to do their own searching rather than be directed to information the teacher considers important, as the search would not otherwise be wide or well-conducted

Online learning will need to be incorporated into the core curriculum by teachers.

Research by Sheffield Hallam University and the Learning and Skills Development Agency (2002) on behalf of the Learning and Skills Council concludes that, unless the curriculum specifies a commitment to online learning by embedding it throughout subject areas, it will be regarded as an 'add-on' by students, who are then unlikely to regard online learning as a relevant part of the curriculum. This is supported by the conclusions from research by Selwyn *et al* (2000) that, unless computers were an integral part of their course and not just for wordprocessing, students did not make extensive use of online learning. Similarly, a HEFCE study concluded there is a lack of student demand for increased use of online learning materials unless their use is a central part of the programme being studied, otherwise the use of IT is restricted to activities such as wordprocessing (HEFCE, 1999b).

Research for OFSTED (2001) found that, while teachers who have received the National Opportunities Funded (NOF) training use computers more often, that training had not increased their teaching expertise to help them make the most effective use of online learning in the classroom. This suggested that training programmes that lack the intended subject-specific focus are less effective in raising teachers' confidence to use online learning (OFSTED, 2001). Many teachers need more information about the range of uses that they could use the Internet as part of their teaching strategy (Bonk *et al*, 2001). Staff development in HE institutions was more effective when it focused on the use of online learning in specific subjects rather than developing staff basic generic IT skills (HEFCE, 1998).

Teachers lack IT skills

In the main, it is the lack of teachers' IT skills in all education sectors that is effecting the potential of online learning to benefit student learning. Research by the University of Nottingham *et al* (2001), on behalf of the National Grid for Learning on the level of online learning training carried out in schools, reported that many teachers had not yet acquired basic skills in online learning, and have yet to develop confidence and competence in its use. Teachers do not appear to be negative to online learning, but many do not yet use it confidently in their lessons.

In further education, Pye Tait (2001), in preparing a workforce plan, identified significant IT skill gaps in lecturing staff. The top three identified gaps were: using IT in the curriculum for just over half of staff; teaching online for about half; IT for personal use for just over a third. More than half of the colleges identified gaps in the skills of lecturing staff, with a negative effect on their ability to use IT in the curriculum. The level of IT skill gaps for lecturers is, Pye Tait (2001) believes, a major cause of concern. Furthermore, research on FE Colleges 2001 ILT strategy updates by Powell and Davies (2001) found that one in three teachers are not competent/advanced in the personal use of IT, and just over half of all teaching staff are regarded as low-skilled in the applications of IT with learners. Many colleges recognise that teachers do not make sufficient use of IT for personal use and even more colleges acknowledge that teachers lack the skill to make best use of online learning in curriculum delivery. Research by Sheffield Hallam University and the Learning and Skills Development Agency (2002) on behalf of the Learning and Skills Council found that some FE teachers do not promote the use of online learning by students due to their own lack of IT awareness, which resulted in disappointing standards of student work. All colleges involved in the research reported the reluctance of many staff to use online learning. Later research in further education undertaken on behalf of the Learning and Skills Council (2002) reached similar conclusions. This research also found that, while many colleges were investing significantly in new technology, such as digital cameras, digital projectors and electronic whiteboards, teaching staff said that they had not been trained in their use

and, as a result, the new technology was not being fully used. In some colleges, students demonstrate higher IT skills than the teachers. The need for the Learning and Skills Council to support a substantial programme for all staff involved in delivering, managing leading and supporting online learning was again recognised (Learning and Skills Council, 2002).

Teachers are not, therefore, undertaking personal development in online learning at the level planned or anticipated, nor are they currently using online learning in the classroom to the level anticipated by the government and other online learning funding organisations. Powell and Davies (2001) found that staff development which does occur varies in its thoroughness and, although many teachers have developed the necessary skills to support students, this often happens through trial and error rather than a structured staff development programme. While many colleges are aware of the need for staff development, there remains a significant minority of colleges that provide little or no development to allow teachers to develop teaching methods appropriate for online learning. This research also concluded that a major staff development effort is necessary if the investment in the IT infrastructure in FE colleges is to lead to improved student learning experiences and outcomes (Powell and Davies 2001).

However, providing staff development opportunities is not in itself sufficient to bring about significant change in the use of online learning. Maddin (1997) and Pelgrum and Plomp (1993) emphasise the need for teachers to have sufficient time to become familiar with the technology. While schools are starting to increase their use of computers in teaching, teachers are making slow progress in learning about them, and most teachers had not completed their National Opportunities Funded (NOF) IT training, intended to increase their confidence in the use of ILT, in the expected timescale (OFSTED, 2001). Teachers were encouraged to complete their NOF IT training outside of schools hours to minimise pupil disruption, which is probably why so many failed to complete (National Further Education Research, 2001). Research by the University of Nottingham *et al* (2001) for the National Grid for Learning supports the suggestion that there has been a reticence about NOF training because of

its high demands on teachers' own time. The production of good quality learning materials is also time intensive and staff need support and time to be creative and innovative (Swaney, 2001). In higher education, there is a need for pedagogical support for academic staff to help them incorporate computer-based materials into the curriculum (HEFCE, 1999a) "in a context of heavy workloads and conflicting priorities" (HEFCE, 1999b:6).

The failure of teachers to acquire IT skills has therefore been due to a lack of time to undertake the required staff development. Moreover, according to Mallinen (2001), in addition to a shortage of time to undertake staff development in IT skills, online learning takes more time than traditional classroom teaching. This is supported by Mason (2001) who finds that teachers teaching online complain about the lack of time, with too many messages to read and too much demand for interaction with students, acknowledging the need to make online learning more effective and less time-consuming.

Teachers current concepts of teaching and learning

Teachers' concepts of teaching and learning will significantly affect any decision they make about using online learning. Veen's (1993a) observations of teachers in a Dutch secondary school leads him to believe that teachers' own pedagogical beliefs and practices influenced not only the ways in which they used computers, but also the approaches they use most often. Teachers adapt the use of computers to their existing teaching routines, but if this required the teachers to deviate too much from those routines, they did not use them. Furthermore, just as some teachers are more willing than others to adopt new technologies in their teaching, others may feel reluctant to reconsider their established pedagogy and uneasy about allowing students to take a more active role in determining the pace and extent of their own learning (Somekh and Davies, 1991). Van den Akker *et al* (1992) also noted that the way computers are used in classrooms may lead to a changed role for teachers, going on to note that some teachers might feel uneasy about this change in role, and seek to minimise these changes.

More recent research by Jackson and Anagnostopoulou (2001) reaches similar conclusions. The value that students place on online learning is dependent on how well the experience is presented by the teacher, and the quality of that presentation will depend on the conceptions of the teacher about teaching and learning, rather than the features of the technology itself. Such conceptions pre-exist, so teachers whose concept of learning is, for example, didactic are much less likely to embrace online learning. "Online learning does not, by itself, change teachers concepts of learning." (Jackson and Anagnostopoulou, 2001:61). As a consequence, online learning is most effective where teachers are predisposed to always carefully consider the situated needs of learners, regardless of the technology.

Copyright and intellectual property rights

According to the Learning and Skills Development Agency (2001), teachers prefer to create or collect together their own materials, which encourages ownership of the materials and the use of online learning in general and nurtures teachers' creativity and makes their role more interesting. There is a need, therefore, for teachers to be able to appropriate and adapt materials to their local conditions. However, Fayter (1998) also identified some teachers' concerns about copyright and intellectual property rights where teacher-developed materials are placed on the Internet and potentially publicly accessible. This might inhibit teachers from agreeing to place their learning materials on the Internet, thereby inhibiting its development as a learning resource. Similarly, Galbraith (2000) discusses the development of an online learning system, whereby class lecture notes, for example, are incorporated onto a college Intranet, with access to them from the learners within and, possibly, outside an institution. He asks if teachers and instructors are going to automatically buy into and use such systems? Are they going to freely contribute their knowledge, lecture notes, class notes, presentations, research etc to be digitised and to be made electronically for access by individuals around the world? He believes that institutions contemplating such a change must be prepared to deal with such cultural aspects.

'Student' barriers

This section looks at barriers related to students that need attention if online learning is to be successfully developed.

With online learning, students will need support to change their learning style.

Earlier (p.21), the need for students to take more responsibility for their own learning if online learning is to be successfully developed was considered. Acceptance of more responsibility for managing their own learning:

“requires a paradigm shift in how students conceive and approach their learning, with a major re-orientation in students’ assumptions and expectations about teaching and learning” (Akerlind and Trevitta, 1999: 97).

Many students’ experience of learning is one where they have learned passively in traditional classrooms and lecture theatres (Akerlind and Trevitta, 1999). Students therefore need to change the emphasis of some of their learning to acquiring learning skills instead of passive learning in classrooms, with an essential emphasis on access to information and its active cognitive processing rather than passive consumption (Noss and Pachler, 1999), where the learner needs to be able to “sort, integrate and reveal the relationships” (Moro, 1997 p.73) and not just “massively store facts” (ibid:73).

Akerlind and Trevitta (1999) believe that educational innovation is not just about the acquisition of additional skills, but also involves a process of change. The change is likely to be problematic where it conflicts with students’ past educational experiences and current conceptions of learning. With online learning, conflict is probable if it is used to enable more active and self-directed learning and not merely to enable easier access to a greater range of material that does not change the way in which students

interact intellectually with the material (Akerlind and Trevitta, 1999). Change produces stress and can hinder the learning process, and hence the success of an innovation. The stress caused through change therefore needs to be acknowledged and managed appropriately (Akerlind and Trevitta, 1999). Teachers and lecturers must, therefore, manage this conflict by recognising the new demands that self-directed learning places on learners, and working with them in managing the transition process. This approach recognises that students faced with such a change will initially look for someone to blame and will probably be hostile to the person, probably the teacher, who they regard as responsible for the change. Such a reaction should be anticipated and assistance provided to ease the introduction of computers into the learning process (Akerlind and Trevitta, 1999). The need for students to change their learning style when using online learning is still therefore a barrier to its adoption (Mason, 2001). There is also a need to understand peoples' attitude to the new technology and ways of overcoming psychological barriers: "technofear" (McNair, 1997:147).

Students need new skills

The lack of learner IT skills was recognized recently as a problem affecting the successful development of online learning (Learning and Skills Council, 2002). Students need to be IT literate so they have the skills to use hardware, software and access the Internet. While many students may already have such skills, some, particularly older, students will have to be taught those skills (Kirkup and Jones, 1996). According to research carried out on behalf of the Learning and Skills Council by Sheffield Hallam University and the Learning and Skills Development Agency (2002), students have different levels of IT skills, and some may be disadvantaged if they are at a lower level than their peers. In higher education institutions, there is evidence of increased use of online learning materials in teaching/learning where there is a departmental strategy to ensure that students have appropriate IT skills (HEFCE 1999a). Wilson *et al* (1998), reporting on how the Open University is teaching over the Internet, state "students need navigational instruction or tools and training in organisational skills" (3.21).

Similarly, Hase and Ellis (2001) believe that students need skills to locate, select, assess information online, and successfully convert this information into knowledge and understanding. Knowing how to access the Internet and where the most relevant information is stored and how to access library databases are considered essential skills for successful online learning (Hase and Ellis, 2001). Being able to interpret information is an important step in converting information into knowledge (Doring, 1999; Schlais and Davis, 2001). The requirement to turn such information into knowledge may, however, create a barrier to the use of the Internet as an effective learning tool, particularly for adults (Doring, 1999). The learner needs to acquire the new skills and knowledge to be able to process information particularly if they wish to use the Internet for learning, increasingly taking more control of the learning process themselves (Noss and Pachler, 1999).

Learners also need to acquire and apply new key skills in new and creative ways, developing high-level learning, thinking and reasoning skills (National Grid for Learning Report, 2002). They need to know when it is appropriate to use, and not to use, online learning, and to be able to use it effectively when its use is appropriate (Further Education Funding Council, 1996), which requires them, in effect, to acquire another kind of literacy, IT literacy (Kirkup and Jones, 1996). The development of online learning therefore does create a number of challenges which teachers must help learners to handle as

“information is no longer structured in a simple linear and logical fashion: it is becoming fragmented, multi-channelled and simultaneous” (Lewis, 1999:142).

However, FE students are rarely taught the skills they need for effective searching on the Internet, and believe that they need more guidance from tutors in evaluating the relevance of the information found on the Internet (Sheffield Hallam University and the Learning and Skills Development Agency, 2002). Enhanced systems will therefore be needed to support student learning online, particularly in their first few

weeks. Students will however need different support at the start, depending on their prior experience.

“The challenge for practitioners is to find appropriate methods of support which sit happily with new technology.”(Brunt,1997:32).

Helm (1997) believes that learners using the new technology value support systems as highly as, if not higher than, learning materials.

‘Resources’ barriers

In addition to barriers related to teachers and students, there are also ‘resourcing’ barriers to the development of online learning.

Accommodation for online learning

According to Lewis (1999), if online learning is to be successfully developed, the whole learning environment needs to be the focus of attention, not just the technology used within it. However, only 20% of computers in the FE sector are open-access, with a large number of machines locked behind classroom doors when students want to use them (Powell and Davies, 2001). There are examples of FE teachers and students being denied access to a PC when needed due to such problems (Sheffield Hallam University and the Learning and Skills Development Agency, 2002). This is a major reason why online learning is underdeveloped. Powell and Davies (2001) believe there is, therefore, a need to provide more open access to computers through the establishment of open plan areas, which are less problematic and more efficient than a large number of relatively small classrooms. In higher education, there is also evidence that the development of online learning is also restricted due to constraints on student access to hardware and user support, and lack of appropriate facilities to enable staff to run and access online materials (HEFCE, 1999a).

However, research on the FE colleges’ 2001 ILT strategy updates reveals that a trend in the establishment of specialist curriculum-based learning-centres is beginning to

emerge. This approach to resources involves the physical gathering together of similar curriculum materials, including computer-based content (Powell and Davies, 2001). In the future, schools may increasingly choose to combine the use of online learning in classrooms with access to complementary facilities in open learning centres that also incorporate library resources, with large schools perhaps developing 'satellite' centres in subject departments (National Grid for Learning, 2002).

Learning resources

Research by the Learning and Skills Development Agency (2001) concludes that it ought to be easy for a teacher preparing a new topic to find online learning materials that will enable him or her to deliver the lesson as effectively as possible. The lack, however, of suitable online learning materials is a significant reason why online learning is currently underdeveloped. Moreover, Rosenburg and Lecuyer (2001) express concern about the quality of much of the existing learning software. They suggest that much computer-based training to date has failed because its content has been bad, lacking authenticity, looking superficially good, but lacking any substance and depth with an inability to tailor materials and courses to individual needs, creating boring materials that turned off students. Similarly, research for the National Grid for Learning (2001) concluded that there are problems in locating high quality learning resources on line, while the lack of suitable materials for curriculum other than key skills areas and limited staff skills to produce or adapt them is a theme that runs through many FE college ILT strategies (Powell and Davies, 2001). This is despite the fact that the technology already has the capacity to deliver appropriately designed materials through the Internet and CD-ROMs (Learning and Skills Development Agency, 2001). Online learning materials should also fully utilise the advantages of multimedia and interaction. (BECTA, 1999). What is needed, Pollock and Squire (2001) believe, is that:

“ content, materials, resources and sources of information should relate and inter-work with learning objectives. They are an asset, a tool and a stimulus and without necessary guidance and learning

moderation, they are useless. The pertinent issue is: who controls, monitors and validates this process and who decides what content is suitable for what learning? Will media companies and the originators of ‘content out of context’ assign themselves with the task of tagging their content to learning objectives?” (Pollock and Squire, 2001: 217).

The cost of developing learning resources is also an inhibitor to the development of online learning, as the high rate of change in software means that the materials can quickly become out of date and their constant replacement expensive (Sheffield Hallam University and the Learning and Skills Development Agency, 2002). While courseware is expensive, the cost can however be controlled by checking what is already available, including auditing existing college material, some of which could be converted to electronic format (BECTA, 1999). In view of the cost, collaboration between different institutions in the production of new courseware is highly desirable (HEFCE, 1998a). This is now being attempted through the very recent development of the e-university.

‘Technical support’ barriers

Inadequate technical support may inhibit the development of online learning. It is important to have reliable technician support continuously available to help staff and students resolve problems as they arise (Lewis *et al*, 1997), and also to provide the expertise in making the hardware and software work (Buck, 1997). Ward *et al* (1998) believe that a dedicated technician is “an essential team member” (4.50) to the successful development of online learning in colleges. Calder (2000) also believes that the provision of adequate technical support needs consideration prior to the introduction of online learning. IT systems are expected to be reliable, with rapid maintenance when things go wrong, while IT environments will require intensive management and technical support if they are to operate efficiently (National Grid for Learning Report, 2002) in order to instil confidence in those who use online learning resources (Galbraith, 2000). This is particularly important when assignment deadlines

approach and to avoid a return, in desperation, to paper-based processes (Hase and Ellis, 2001). Technical problems creating ‘down time’ are also likely to create resistance to the development of online learning, reinforcing the prejudices of those who were not enthusiastic about its use in the first place (Sheffield Hallam University and the Learning and Skills Development Agency, 2002).

Management

A potential further significant barrier to the development of online learning is unsupportive management. According to Rosenberg and Lecuyer (2001), online learning will never be successful without strong management support in a training organisation that isn’t reticent about learning online and has an organisation-wide strategy to back online learning. In research by the University of Nottingham *et al* (2001) on behalf of the National Grid for Learning, teachers report a positive impact where senior managers in schools lead by example, and where they are enthusiastic and visionary about online learning, and can be creative with funds, resources and expertise. Management support in higher education if online learning is to be successfully developed is considered to be essential, with:

“technophobic, or otherwise hostile senior and middle managers, including heads of department, seen as a major barrier to further progress” (HEFCE, 1998:18).

This finding was confirmed by a later HEFCE study, where the lack of leadership and senior management support was again identified as a major barrier to the use and adoption of online materials. (HEFCE, 1999b) There is also some evidence that senior managers in FE are still resisting change. (Sheffield Hallam University and the Learning and Skills Development Agency, 2002). Where headteachers are enthusiastic and visionary about online learning, it can yield significant workload reductions whilst securing undoubted advantages in addition to direct curriculum benefits (National Grid for Learning, 2002). Research by BECTA (2001c) finds that schools with good or very good leadership were nearly twice as likely to have good IT

resources than those with poor or unsatisfactory leadership. According to Sheffield Hallam University and the Learning and Skills Development Agency (2002) and Swaney (2001), the support of management is essential if online learning is to be integrated into the curriculum. Managers need to be aware of issues such as human resource implications, staff development needs, flexible working patterns and funding as “the emphasis has to change from the acquisition of the technology to changing the culture of the institutions” (Helm, 1997:47).

However, of particular interest to my research on further education, there is evidence that change is problematic where online learning is implemented by management without prior consultation and without the support of the teachers who are to manage the online learning. In her research on further and higher education, Browne (2000a) finds that lecturing staff interviewed about a move to adopt online learning identified serious concerns about: the speed of change; a perceived reduction in the quality of teaching and learning; their security of tenure; a lack of appropriate teaching materials available for purchase; the need for time to develop custom-made packages; the failure of management when introducing change to consider the pedagogic issues involved in using multi-media interfaces to deliver teaching and learning; what they perceived as the tenuous links between the use of online learning to reach more and different kinds of learners. Browne (2000a) concludes that, when the senior management had instigated the change (as a top down approach), there had been overt resistance and limited progress made and management insistence on a speedy change had led to limited preparation and failure.

Summary of barriers identified in the literature that might impede the successful development of online learning.

The literature review therefore concludes that, if online learning is to be successfully developed, the teachers’ role needs to change from being the source of knowledge to that of a monitor and mentor of student learning. However, teachers still need to be convinced of the benefits of moving away from their traditional curriculum delivery approaches. They will also be required to provide support to the new learning processes that the adoption of online learning will create, principally the need to help

students to acquire new skills, knowledge and understanding through the use of online learning. Teachers will need to be the gatekeepers of the quality and relevance of online information, and will need additional time to undertake the staff development they will need to acquire new IT skills. With a subject-specific focus, they will need to acquire the skills to be able to confidently use online learning in curriculum delivery and then gain experience in its practical application. They will need to acquire Internet and college network skills to access and retrieve relevant information before directing students to use the information, and also acquire skills to help students translate information from online sources into knowledge. Teachers are also concerned about copyright and intellectual property rights, increased workloads and potential job losses. Teachers' concepts of teaching and learning will significantly affect any decision about using online learning.

Students will need support from their tutors if they are to learn effectively online. Students will also need to accept more responsibility for their own learning, thereby changing their current perceptions of how they learn. This change is likely to be stressful and will need careful handling by tutors. Students will also have to be IT literate to be able to use hardware and software appropriately. They will also need to acquire information handling skills to enable them to locate, select and assess information and to turn that information into relevant knowledge and understanding.

Resources issues include the need to maximize the number of open-learning centres, and to establish specialist curriculum learning-centres, incorporating computers. Teachers need to be able to easily find and use high quality learning software, but there is currently a lack of suitable software. Teachers, however, prefer to create or collect together their own learning materials. Technical support is essential if online learning developments are to be successful, as is senior management support. However, senior managers should not initiate the development of online learning without the support of teachers.

Literature review conclusion

The development of online learning is a high priority for the government, and subsequently a high profile in all education sectors (DfES, 2003). In the education sector nationally, and in the college studied, significant funds have been invested to develop online learning. However, the current use of online learning is limited in schools (National Grid for Learning, 2002), with relatively few teachers integrating the use of computers into subject teaching (National Grid for Learning, 2001). In further education only 18% of colleges reported common usage of online learning materials (Powell and Davies, 2001). In the college studied, despite the development of online learning being a high priority, the use of online learning in the classroom is underdeveloped. Even though many teachers at the college have identified IT training needs, few have attended IT staff development sessions.

All of this suggests that the under-utilisation of online learning might not be because of problems with online learning infrastructure, but more related to the existence of barriers to its adoption and/or the willingness of teachers to use online learning in the classroom. The review identified a number of benefits of online learning that might improve teaching and learning, but most were countered by other literature that suggested that, rather than being beneficial, such developments would diminish teaching and learning. As an example, some literature suggested that learning would benefit as students took more responsibility for their learning (Barker, 1999; Fayter, 1998; Learning and Skills Council, 2002; Schlais and Davis, 2001; Somekh and Davis, 1991). Conversely, other literature suggested that learning would diminish if students were required to take more responsibility for their own learning (Brunt, 1997; Leathwood, 1999; Sinclair, 1998). The literature also identified potential barriers to the development of online learning, such as the lack of teacher IT skills (Powell and Davies, 2001; Pye Tait, 2001; Learning and Skills Council, 2002).

In summary, the following questions therefore emerged from the discussion in the literature review of the beneficial and detrimental effects of online learning development:

Does learning online supports the constructivist approach by enabling students to take more responsibility for their own learning?

Does online learning improve achievement and student motivation?

Will the teacher's role diminish with online learning?

Is learning more accessible online?

Is communication improved when students learn online?

Does online learning increase the availability of relevant and interesting information?

Does online learning increase individual learning opportunities?

Does the development of online learning improve learning?

The following barriers to the development of online learning emerged from the discussion in the literature review:

The need for the teacher to manage the increasing volume of information available online;

online learning will need to be incorporated into the core curriculum by teachers;

teachers lack IT skills;

teachers' current concepts of teaching and learning;

copyright and intellectual property rights;

with online learning, students will need support to change their learning style;

students need new skills;

accommodation for online learning;

learning resources;

technical support;

management.

The literature review has therefore shown me that further research is needed to shed more light on whether teachers in my college believe that the development of teaching and learning benefits or diminishes learning. Further research will also throw more light on the relative importance of each of the barriers identified in the literature, clarifying if any require particular attention if online learning is to be successfully

developed in the college. The fact that the further research seeks the views of teaching staff on these important issues will be particularly illuminating. As BECTA (2001b) concluded, there is a need for:

“high quality research that builds on our existing knowledge and extends it, to make clear ‘what works’ in the provision of ICT [online learning], and how we can create ‘what works’ “ (BECTA, 2001b:3).

The further research therefore seeks to shed more light on whether teachers believe that learning improves when online, and what is needed to ‘create what works’ in relation to online learning in the college. In particular, the research will build on that undertaken by Browne (2000a) on further and higher education, which came to the conclusion that teaching staff had serious concerns about the appropriateness of adopting online learning. However, Browne only reviewed the development of online learning driven by senior management without the support and involvement of teaching staff in the context of researching the management of change. Browne concluded that:

“In the FE institution, the coercive approach had alienated the staff [teachers] who adopted what appeared to be a type of ‘sabotage’ and were abandoning their students to work in isolation in the newly built RBL centre. What has to be asked is whether this was a deliberate strategy or an outcome of a lack of confidence, knowledge and skill making them reluctant to engage fully in [online] learning?” (Browne, 2000b:184).

This research will therefore build on Browne’s research by seeking to establish if teachers in another FE college are not using online learning as a ‘deliberate strategy’ because they do not believe it improves student learning, or whether there are barriers such as a ‘lack the confidence, knowledge and skill’ which are preventing them using online learning. Relevant questions emerged from the literature review and were

therefore incorporated in a questionnaire for completion by teaching staff in the college. Semi-structured interviews were also held with individual teachers and teacher focus groups to identify any other barriers that may currently impede the development of online learning in the college, which might have led to the current under-utilisation of online learning discussed earlier. The rationale for adopting these research methods is considered in the next chapter.

CHAPTER THREE: METHODOLOGY

Silverman (2001) considers 'methodology' to be the choices made about which cases to study, the methods of data gathering to be used and the way data is to be analysed etc. when planning and carrying out research. These issues are considered in this chapter.

Theoretical background

Bryman (1988) refers to a 'paradigm' as a set of beliefs which influence what should be studied, how research should be carried out and how results should be interpreted etc. and, therefore, the methodology to be adopted. There has been considerable debate about what knowledge is, which centres around two competing paradigms in the social sciences. At one end of the spectrum, there is the established traditional, positivist view that knowledge is an 'out there' given that needs to be discovered through research and communicated to people, where quantitative data is used to establish knowledge and a quantitative methodology adopted. At the other end of the spectrum is a more radical, interpretative view that knowledge is contextualised by the personal experience of an individual, which would use qualitative data and a qualitative methodology would therefore be adopted (Burrell and Morgan, 1979).

Bryman (1988) believes that the characteristic of qualitative research that primarily differentiates it from quantitative research is its emphasis on seeing events, actions, values etc. through the perspective of the people involved in a study. Qualitative researchers also provide detailed descriptions and analysis of the social settings under investigation. They also believe that behaviour, events etc. can only be understood if situated in the wider social and historical context. There is also an emphasis on process that reflects the qualitative researchers concern to reflect the reality of everyday life. Qualitative research is also characterized by its flexibility and lack of structure, seeking to avoid the imposition of prior frames of reference for the study, thereby enhancing the opportunity to discover unexpected issues of relevance to the study. Qualitative researchers, therefore, often reject the formulation of theories and

concepts before beginning their fieldwork, as they might inappropriately constrain the researcher and may not be compatible with the perspectives of the research participants (Bryman 1988).

On the other hand, quantitative research, Bryman (1988) states, is based on a belief that the study of natural sciences provides a standard against which 'knowledge' can be gauged and which are equally applicable to the study of society. This is known as positivism, where only observable phenomena can genuinely be accepted as 'knowledge', thereby excluding subjective experience from social scientific knowledge unless some way could be found to make it observable. Scientific theories are, according to the positivist doctrine, therefore only acquired after the accumulation of verified facts. From such theories, hypotheses can be derived which are then subjected to further empirical research to test the theory, which may need revision if not supported. Positivism also requires the researcher to eliminate any values that he/she might hold and which may affect his/her objectivity and therefore the validity of any knowledge arising from the research. However, as Bryman (1988) points out, this definition of positivism is fairly broadbrush and:

“there is no single treatment of positivism which entails all of these principles, and not all positivists would subscribe to all of them”
(ibid:16).

Nevertheless, according to Bryman, quantitative researchers do seek to conform to the methods and procedures of the natural sciences and are thereby influenced by positivism. They also seek to generalize the results of localized research to a wider population. The emphasis in quantitative research is on facts produced by observation, either direct or indirect, using valid and reliable measurement procedures. Quantitative research also seeks to establish causality, to demonstrate that things happen because of other things.

There are, however, criticisms of quantitative research. For example, Cohen *et al* (2000) report that critics of positivism/quantitative research are particularly concerned

with its exclusion of “choice, freedom, individuality, and moral responsibility” (ibid:17). Opponents of positivism also reject the notion that human behaviour “is governed by general, universal laws and characterized by underlying regularities” (Cohen *et al*, 2000:19). There are, however, also criticisms of qualitative research. For example, Denzin and Lincoln (2003) state that qualitative research has been criticized for being unscientific, but thereby only exploratory or subjective. As a result, critics also say that qualitative researchers have no way of verifying the statements they make about ‘truth’. They write fiction, not science, their critics say.

What sense then can a relatively inexperienced researcher make of these apparent contradictions and criticisms of the two paradigms? Bryman (1988) provides the helpful observation that many aspects of the debate about qualitative and quantitative research are unsatisfactory, as differences only are mainly highlighted. He observes that there are, in fact, many similarities. He questions the tendency to concentrate on differences in the two approaches instead of identifying which elements of each contribute to ‘good’ research. He suggests that there is no reason why qualitative research should not test out theories in the way traditionally associated with quantitative research, negating the traditional view that qualitative research generates theories while quantitative research tests theories. The critical issue for Bryman (1988) is for the researcher to be aware of the appropriateness of particular methods, or combination of particular methods, for particular issues, taking account of the benefits and limitations of each approach in identifying one that is suitable for a particular purpose. He cites a number of studies that have benefited by the adoption of a non-doctrinal stance that combines the two approaches to research. This advice was particularly helpful in choosing the methods used in this research.

Bryman (1988) provides a useful summary of the logical structure of the quantitative research process, whereby hypotheses are deduced from theory, methods for gathering data relevant to the hypotheses established, data is gathered about the hypotheses and then processed, the data is analysed and interpreted and findings on the hypotheses induced, which then may test the initial theory. However, Bryman also reports that this structure has been criticized, particularly the centrality of theory in much

quantitative research. Its 'linearity and orderliness' have also been criticised, with quantitative research often much more 'messy'. Neither does the model recognize sufficiently the impact of resource constraints on the choice of research methods. He notes, however, that this structure is used as "the reconstructed and rationalized logic of the research process often enshrined in research reports" (Bryman, 1988:21).

Validity

Gathering of data about people is problematic (Taylor, 1985), and is concerned with how people react to situations in that they construct their individual interpretations of events in each situation and use such interpretations to act in a particular way.

Therefore, for example, the very fact of being the subject of research may cause people to act in a different way than they might otherwise have done. This clearly has implications for establishing 'truth'. Bryman (1988), for instance, discusses reactivity in the context of interviews, believing that the presence of the interviewer could affect the responses of the interviewee. However, the mix of methods and data sources used in the research provided an opportunity to triangulate the data and thereby minimised somewhat any such effects on the validity of the research. Cohen and Manion (1980) describe triangulation as "the use of two or more methods of data collection" (ibid:254). Patton (1990) refers to 'data triangulation', where a variety of data sources are used in a study, and also 'method triangulation', where multiple methods are used to study a single problem. Bechoffer and Paterson (2000) believe that triangulation is stronger where a conclusion arising from research are based on different methods, such as unstructured interview material as well as the results of a survey. Similarly Denscombe (1998) believes that gathering different types of data on the same topic enables the researcher to see things from different perspectives and to thereby have a more complete understanding of the topic. This is because the multi-method approach allows findings to be corroborated or queried by comparing data from the different methods, thereby enhancing the validity of the data. Denzin and Lincoln (2003), in their discussion on the validity of qualitative research, introduce the idea of 'multiple voicing' in research reports, where, for example, interpretations

about data which are plausible, yet conflicting, can be discussed without seeking to reach any single, all-embracing, conclusion.

Cohen *et al* (2000) stress the importance of validity if research is to be effective: they say that invalid research is worthless. Validity is a requirement for both quantitative and qualitative research. However, no research, they say, can be 100% valid/accurate. To measure the degree of error, quantitative research has standard error measures inbuilt in the process. The validity of qualitative research is much criticised by positivists due to the lack of an equivalent to the scientifically calculated standard error rate used in quantitative research. In qualitative research, the subjectivity of respondents does result in a degree of bias. Research must therefore “minimise invalidity to maximise validity” (Cohen *et al*, 2000: 105). The subjectivity of the researcher must therefore be minimised to maximise the validity of the research. Griffiths (1998), in writing about ‘knowledge’, identifies a number of ways whereby the validity of qualitative research can be maximised. ‘Knowledge’ is subject to interpretation. Griffiths believes that all knowledge is uncertain in the sense that it can be revised and worked on in order to make it better, and that knowledge is situated in its context and therefore always subject to revision. As a result she believes there is no stable, unchanging state of knowledge, and that knowledge bears the marks of its knowers and is therefore affected by individual perspectives.

“The hope of accumulating certain knowledge has been widely
(though not universally) lost....There are doubts about developing
any ‘God’s eye view’ of the world because all knowledge is
perpetual and situated, bearing the marks of the knowers.”
(Griffiths, 1998:72).

According to Griffiths (1998), good research depends on keeping facts and values separate from each other. One classical element of ‘good’ research is considered to be its objectivity, where the preconceptions and biases of the researcher had been accounted for in the construction of the research report and eliminated as an influencing variable. Griffiths however, while recognizing that bias is to be avoided in

any paradigm of research and that all researchers try to avoid it, believes that researchers must recognise not only the partiality of all perspectives, but also their own espoused values and politics, which will also affect researchers' stance to their chosen methodologies. She therefore argues that, without acknowledgement of initial opinions (including beliefs and values), research will certainly be biased. Denzin and Lincoln (2003) also discuss this issue, known as reflexivity, where researchers relinquish the 'God's-eye' view and are open about how their own history and personal experiences have influenced their research. As I am the principal of the college being studied, such views on the need for the researcher to be explicit in the research report on his/her initial opinions concerning the research so that any bias can be assessed is particularly relevant. The introduction to this report therefore described how my experience in using open learning developed my interest in the use of online learning. Moreover, as I am the principal, the potential for the research outcomes to be biased is recognised and has been taken into account as described in this report to minimise its effects on the validity of the research. However, as discussed later, the role of the college principal as researcher can also be beneficial to the research, particularly in relation to the increased potential for change arising from the research findings.

Ethics

As there are doubts about knowledge being used well, because of the way it is implicated in the circulation of power (Griffiths 1998), the political position of the knowers is significant in the construction of knowledge. Since knowledge depends on human interpretations and values, research methods need therefore to take account of the unequal power of social groups.

“The more powerful elite groups are able to persuade less powerful groups to hold views or act in ways which are contrary to their own interests.”(Griffiths, 1998: 36).

One way to reduce the effect of 'power' on research is to adopt the principle of collaboration, where the educational researcher will work 'with' rather than 'on' or 'for' those directly involved in the research (Griffiths, 1998). This approach works on the principle that every person has the right to participate in the research, but also has the right not to collaborate, and also that the researcher must not expect everyone to participate nor coerce anyone who would prefer not to participate. Denscombe (1998) and Silverman (2000) also emphasise the importance of 'informed consent' by the subjects of the research if the research is to meet required ethical standards. Informed consent requires subjects to be given information that is easy to understand about the research that is relevant to their decision about whether to participate, and ensuring that their participation is voluntary. The issue of power relationships is therefore significant and was taken into account to increase the validity of the research. All potential participants in the research were therefore advised in writing before agreeing to participate that I was conducting the research as a student as part of an Ed Doc programme and not as college principal, and their involvement was entirely voluntary and that, for the questionnaire, their responses were completely anonymous. As the interviews were unstructured, I did not attempt to influence the interview responses, merely listening to the comments made by the interviewees. To minimize the potential for other college managers to inappropriately influence the research outcome, I deliberately did not contact any college managers other than in their role as teachers. Their opinion therefore had no more significance to the research conclusions than other teachers. It was, however, also emphasized to all the potential participants that the research was an opportunity for teaching staff to influence the direction of any future development of online learning, thereby encouraging their involvement.

Patton (1990) discusses the ethics of interviews, pointing out that people in interviews may well disclose things they never intended to. He stresses that social scientists do not have the same legal protection as, say, lawyers and therefore cannot, in reality, totally guarantee confidentiality. In addition, he states, qualitative research is about people, often about their beliefs and feelings, aspects which are very personal to them. Other risks will need to be considered such as: will the people participating be at risk

from their colleagues for 'having talked'? Other ethical issues discussed by Patton include confidentiality, informed consent, data access and ownership, which emphasizes that, while quantitative research is impersonal, qualitative research is likely to be more intrusive. Interviewers must therefore have an ethical framework for dealing with such issues.

Throughout this report, I have made reference where appropriate to my role as college principal and how I sought to minimize any influence that role had on the validity of the research. As the college principal, I am in a position of power in the college and there was, therefore, a possibility that this power might affect the validity of the data. I therefore seriously considered this issue before deciding to use questionnaires. If questionnaires were used, the data would be gathered anonymously from teachers. Such questionnaires are routinely completed annually in the college as part of a 'staff survey' and responses critical of management often result. I therefore concluded that teachers would similarly answer the research questionnaire honestly. While it is possible that the somewhat disappointing questionnaire response rate might have been influenced by my role as principal, I do not believe, however, that role affected the honesty of the responses.

Before deciding to gather information through interviews, I also considered my position as college principal and any potential implications on the validity of the data gathered. As a result, I was not directly involved in identifying teachers to be interviewed, either individually or in groups, so I did not influence the choice of interviewees. The purpose of the interviews was solely to identify barriers to the development of online learning in the college. While the interview responses were not anonymous, I have no reason to believe that the information given was anything other than honest. The fact that the interviews confirmed the information provided anonymously through the questionnaires supports this belief. Neither was the subject of the interviews, the development of online learning, a controversial issue in the college. However, on reflection, it would have been preferable not to hold the interviews in my office to emphasize that my role was researcher and not principal.

However, I do not believe this affected the honesty of the answers provided in the interviews.

Rationale for the methods adopted

Silverman (2001) describes 'methods' as specific research technique. Bryman's (1988) 'logical structure' described earlier (p. 59) was the process I, in fact, adopted in my research, which was initially concerned with discovering whether online learning development was beneficial or detrimental to student learning in the FE college where I work. The literature review enabled me to identify a range of benefits and detriments of online learning development from what others had written about their own experiences. The FE college studied is relatively small, with only 95 full time/fractional teaching staff and around 130 part time sessional teachers. As the college is experienced in handling questionnaires completed by all of the teaching staff as part of its quality monitoring arrangements, I decided to seek the opinions of all the college teaching staff through a questionnaire. I used a structured questionnaire, with some open questions, to establish the level of support for each benefit/detriment identified, arriving at conclusions after analysing that data. Subject to the caveats about generalising from case studies discussed later, others could then use these findings to continue to test the theory on, and increase their own understanding of, the benefits or detriments of online learning development in their own context. Similarly, the second part of the research was concerned with identifying barriers that might inhibit the development of online learning. The literature review identified a number of barriers experienced and written about by others. I used the same questionnaire to establish the level of support for each of these barriers, enabling me to conclude which barriers were relevant to the development of online learning in the college. Subject to the caveats already mentioned, others could then use these conclusions to increase their own understanding of, or to further test the theory on, the barriers to online learning development in their own context.

Therefore, my research as described so far appears to fall within Bryman's (1988) 'logical structure' description of the quantitative research process described earlier.

However, as an example of how uncertain such descriptions are, Bryman (1988) also states that survey researchers frequently say that they are in fact looking at the social world from their respondents' perspectives, thereby suggesting that surveys could in fact fall within the qualitative approach! Notwithstanding this somewhat confusing contradiction, I was nevertheless concerned that, in only including in the questionnaire those barriers identified in the literature, there might be other, perhaps localised, barriers in the college which were preventing the development of online learning. I therefore decided to include qualitative research methods in my study by including unstructured individual and group interviews to discover if there were in fact any additional barriers to those identified in the literature. I also included elements of qualitative research in the largely structured questionnaire through the inclusion of some open questions which sought to identify if there are any relevant benefits, detriments or barriers to the development of online learning not already included in the questionnaire. I therefore believe that I included elements of both approaches, thereby adopting the advice of Bryman (1988) to consider the appropriateness of particular methods, including a combination, in identifying one that is suitable for a particular purpose. This approach also introduced the possibility of contradictory results if the barriers identified in the interviews differed from those identified from my literature review and tested through the questionnaire. According to Bryman (1988) such findings are consistent with the spirit of triangulation, which seeks to test one approach against another to assess whether findings are consistent.

Why a case study?

My research adopted a case study approach. Before adopting this approach, I considered a number of issues. I was, for example, aware that, according to Hammersley (1999), there are three possible research methods: a case study, a survey or experimental research. He characterises survey research as the investigation of a relatively large number of cases, with quantification of data a priority where the aim is empirical generalisation, with conclusions relating to all cases in a larger population based on investigation of a sample of cases drawn from a population. Based on Hammersley's definition of survey research, none of the characteristics he describes are relevant to the planned research in a single FE college. Hammersley (1999) also

describes the key characteristic of experimental research as the study of created cases. According to Cohen *et al* (2000), an essential feature of experiments is for researchers to deliberately control and manipulate the conditions which determine the events they are interested in. As the research studies the perceptions of teaching staff in the FE college without seeking to control or manipulate anything, it does not meet the criteria and is, therefore, not experimental.

According to Hammersley (1999), a case study involves the study of a small number of instances where just one case may form the focus of the investigation. Furthermore,

“A case study focuses on one instance of a particular phenomenon with a view to providing an in-depth account of events, relationships, experiences and processes occurring in that particular instance.” (Denscombe, 1998:32).

Cohen *et al* (2000) describe a case study as a specific instance, such as a class or school, which deal with real people in real situations and produce outcomes which are more understandable to people than abstract theories or principles, and may even help them to make sense of how abstract principles and ideas fit together. Nisbet and Watt (1984) also believe that a wider audience is better able to understand the results of a case study, as they are often written up in plain language. The results, they believe, are therefore more intelligible and can also provide insights into other, similar cases and situations. Patton (1990) refers to ‘purposeful sampling’ where the focus is an in-depth research on a small number of cases, including a single case, selected purposely so that ‘information-rich’ cases can be selected for in-depth study that will ‘illuminate’ the questions under study. These, according to Patton, are cases from which one can learn a great deal. He believes that there are no rules about sample size in qualitative research, where sample size depends only on

“what you want to find out, why you want to find it out, how you want to find it out, and what resources, including time, you have for the study.” (ibid:184).

As the research focused on one FE college in investigating aspects of the development of online learning, a topic of wide interest well beyond the research community, it meets the Cohen *et al* (2000); Denscombe (1998); Hammersley (1999); Nisbet and Watt (1984); Patton (1990) 'case study' criteria. Furthermore, according to Bechhofer and Paterson (2000), the group to be studied and the place to be studied are sometimes clearly defined by the research problem to be addressed, where the researcher will have a very precise idea from the outset of a piece of research to be carried out, when the choice of group and location is likely to be largely determined. In such instances, a case study approach is appropriate and the design problem focuses more on issues such as sample selection and research instruments to be used. Denscombe (1998) also refers to instances where there is no real choice when selecting the cases to investigate. As the focus of the research is a specific college where I work as principal, the advantages of practitioner research when that research is carried out in the practitioner's own school or college provides a further rationale for adopting a case study approach. For example, Middlewood *et al* (1999) report that improvement at institutional level "is based on data systematically collected and interpreted, and that teacher involvement in this is crucial"(p.x). Hargreaves (1998:47) also supports the involvement of teachers in research, suggesting that "this would ensure its relevance and help teachers to make better decisions about what is effective" (p.54). Lumby (1999) also believes that teachers will be particularly supportive of research in their organisation where the research investigation was relevant to their needs, or where seen as relevant to the progress of the school or college. Moreover, Middlewood *et al* (1999) believe that the involvement of managers in education research can also significantly improve teaching and learning.

"The headteacher/principal and their deputies may be in a particularly strong position to ensure that any research they undertake leads to the implementation of recommendations."
(Coleman, 1999:159).

In support, Lumby (1999) reported that:

“The headteacher at Kent Hills School notes that being a Headteacher meant you were in an ideal position to implement the results of research.” (p. 31).

Generalising from a case study

Patton (1990) states that qualitative researchers are generally uneasy about the extent to which they can generalise the results of their research. The main concern, he believes, is that findings may be untypical which may make their contribution to wider theoretical developments problematic. In particular, Nisbet and Watt (1984) identify as a weakness the fact that the results of a case study cannot be easily generalizable. However, they do nevertheless suggest that the results of case study research could be generalizable “by an intuitive judgment that ‘this case’ is similar to ‘that case’” (p.76). This process is similar to what Bassey (2001) describes as ‘fuzzy generalisation’, where ‘x in y circumstances *may* result in z’ replaces the certainty of a scientific generalisation that ‘x in y circumstances *will* result in z’. Bechhofer and Paterson (2000) also believe that, while it is not strictly statistically possible to generalize from a case study, all organisations from a particular field “will behave similarly in certain ways” (p.48) while not always behaving the same way. This research report will enable other educational institutions to compare their own context and circumstances with the college studied and decide whether their own institution ‘behaves in similar ways’ to this college. If one accepts the Bassey (2001) and Bechhofer and Paterson (2000) definitions of the generalisability of case study research, this may, in some circumstances, mean the research outcomes could be generalisable to other institutions. Moreover, as “case studies may be seen as representative and generalisable insofar as we are trying to generate and develop theories” (Bechhofer and Paterson, 2000: 49), it is hoped that the research will contribute to existing theory on the important topic of the use of online learning in education. It could therefore be a case study that “illuminates and develops theory [that] we can treat as representative” (Bechhofer and Paterson, 2000: 49).

However, the prime purpose of case study research is to generalise ‘about’ the case, in this ‘case’ to answer questions about the development of online learning in a single FE college, an approach supported by Bassey (1984) who believes that “the study of a single event is a more profitable form of research (judged by the criterion of usefulness to teachers) than searches for generalizations” (p. 104).

Bassey (1984) also suggests that, if the purpose of educational research is to produce generalisations, a case study can only be justified as “one more brick contributing to the construction of a large house” (p.119).

Data collection: questionnaires

The research is concerned with two aspects of online learning development in an FE college. The first aspect is concerned with the concept that online learning had effects on student learning, either beneficial or detrimental. My literature review identified a number of effects of online learning development, some beneficial, others detrimental. The second aspect of the study is concerned with the concept that online learning is inhibited by the existence of barriers to its development. My literature review identified a number of barriers to the development of online learning. As Bryman (1988) points out, research involves finding a way to measure such concepts. I decided to use questionnaires to measure the extent to which college teaching staff perceptions accorded with each of the beneficial and detrimental effects of online learning development, and barriers to its development, identified in my literature review. Furthermore, according to Youngman (1984), a decision to use questionnaires as a research method should follow consideration of whether other methods, such as interviews or observations, are more appropriate. However, as Wilson (1984) acknowledges, observation as a research method can be “laborious and time-consuming” (p. 30). Time constraints would therefore have restricted my capacity to conduct sufficient observations within the time frame of the doctorate to reach any valid conclusions. Furthermore, according to Taylor (1985), the fact of being the subject of an observation can cause people to act differently than they otherwise would have done. I also had to consider my role as a college principal and the risk that

teachers being observed by me would, in all likelihood, affect the validity of the data. For the reasons outlined, I therefore rejected observation as an appropriate research method, and decided to conduct interviews instead. Moreover, Denscombe (1998) suggested that questionnaires are an appropriate way of acquiring data in certain situations, listing six. The college situation meets all six conditions, further justifying the use of questionnaire in the research. First, where there are a large number of respondents working in different places. The investigation sought information from all college teaching staff working in different sites in the college being studied on their views on online learning. Second, where straightforward information is being gathered. The questionnaire consisted of fifty statements against which respondents indicated the extent of their agreement. Third, when the “social climate is open enough to allow full and honest answers” (ibid:88). Safeguards were in place that maximised, for example, the confidentiality of responses, intended to ensure that only valid responses were provided. Teaching staff are also experienced in completing questionnaires in the college studied. For example, staff questionnaires are completed annually in the college studied to identify any concerns that they might have about their employment or working environment. Criticisms of existing arrangements, including criticism of college management, are common outcomes from these surveys, suggesting that full and honest answers could be expected in the investigation that used the same methods. Fourth, where there is a need for standardised data. This was the case in this investigation to measure the extent to which teaching staff supported the relevant issues identified in the literature. Fifth, where resources allow for costs such as printing, postage and data analysis. Cost was not an issue. Sixth, where the respondents “can be expected to be able to read and understand the questions” (ibid:88). The respondents are all teachers, either full or part time, and their views were sought on a pedagogical issue.

Youngman (1984) produces a useful guide on the design and analysis of questionnaires. Cohen *et al* (2000) write on what they describe as ‘operationalising the questionnaire’, whereby fields are identified derived directly from the research problem/purpose about which data can be gathered. To meet this criteria, Youngman’s (1984) advice to use the literature review as the sole source of the

issues/fields to be addressed in the questionnaire is particularly helpful. Cohen *et al* (2000) suggest that the larger the size of the sample, the more structured and closed the questionnaire needs to be to facilitate statistical analysis. As I sought a 100% 'sample' from all college teachers, I opted for a structured questionnaire, with a limited opportunity through three open questions for respondents to provide more personalised data. It is also necessary to decide whether to incorporate 'statements' or 'questions', with statements preferred if opinions, rather than facts, are sought (Youngman, 1984). As the opinions of the teaching staff on the implications of online learning were sought, statements were used in the questionnaire. Where opinions are sought, Cohen *et al* (2000) and Youngman (1984) refer to the importance of allowing for partial agreement with any statement by adopting some way of grading responses, such as the 5 point Likert scale which grades categories of response from 'strongly agree' through to 'strongly disagree'. This method was adopted in the research. The Likert scale includes a 'neutral' response, and Youngman (1984) believes that such a response needs to be understood by the respondent, so that it does not provide an opportunity to be indecisive in an answer, or where the question is not understood. It should reflect a genuine uncertainty of opinion about the statement. While a neutral category was included in the questionnaire, on reflection respondents ought to have been explicitly advised to only provide this response if they neither agreed nor disagreed with the particular statement.

Cohen *et al* (2000) and Youngman (1984) also suggest that some form of identification should be included on the questionnaire so that follow-up of any non-returned questionnaires could occur. I referred earlier in the discussion on ethics to my concern that my position as college principal should not affect the validity of the research. I was very aware that teachers in the college were reluctant to complete the annual staff questionnaire if they believed there was any possibility they could be personally identified. They would probably be even more reluctant if they perceived the questionnaire to be 'for the principal'. No such form of identification was therefore included in the research questionnaire, and teachers were told that responses were anonymous. It was not therefore possible to follow-up any unreturned questionnaires other than to write one further letter to all respondents after the first

deadline for the return of the questionnaire to advise that it was not 'too late' to return completed questionnaires and to reiterate the importance of their response as their contribution on an important aspect of the college curriculum development. However, it was not possible to specifically target people who had not returned questionnaires, which partly explains why, of the 219 full, fractional and part time sessional teaching sent questionnaires, only 86 completed questionnaires were returned, which represents an overall completion rate of 39%. However, 56% of full time and fractional teachers completed the questionnaire, with only 28% completed by part time sessional staff. While the response rate from part time sessional teachers was disappointing, and probably reflected their limited involvement in the life of the college, this was compensated somewhat by the fact that a majority of full time and fractional staff completed the questionnaire. As full time and fractional staff are probably more experienced educational practitioners, their opinions of the effects of online learning development on student learning, and of the barriers inhibiting the development of online learning, were particularly valuable. Furthermore, as Youngman (1984) states that response rates of less than 50% "must be considered of dubious validity unless representativeness can be established" (p. 26), the analysis of responses therefore separates those provided by full time and fractional teachers, with a response rate of 56%, enabling a comparison with part time sessional staff to identify any significant differences of opinion.

Based on the above principles, a structured questionnaire with pre-determined statements with some open questions, was therefore used to ascertain the teachers' perceptions on the use of online learning. The first part of the questionnaire was based on their views of the beneficial and detrimental effects of learning online identified in the literature, with the intention of establishing the level of support for each effect. The second part of the questionnaire similarly sought the level of agreement of the college teachers on the relevance in the college of the barriers to the successful development of online learning identified in the literature. There were also three opportunities in the questionnaire for respondents to identify any additional beneficial or detrimental effects, or any other barriers not included. A copy of the questionnaire sent out to all teaching staff is attached as appendix 1, together with the letter sent

with the questionnaire as appendix 2. As discussed later, both were piloted and revised prior to their use. The questionnaire and the reminder letter were distributed through the internal mail for full time and fractional teachers, and by post to home addresses for part time sessional teachers.

In this report, the term 'online learning' has been used. In the questionnaire, the term 'ILT' (Information and Learning Technology) was used. 'ILT' is defined as 'using IT to administer and manage learning and the business activities of an institution'. I decided that, on reflection, this definition was a much wider definition of the use of IT than was used in this study, which is only concerned with the use of IT to support learning. I therefore have used the term 'online learning'. However, the definition of 'ILT' I included in the covering letter to potential questionnaire respondents is the same as used to describe 'online learning' in this report. For the purpose of this research, the two terms are therefore synonymous.

Data analysis: questionnaires

I followed the advice of Cohen *et al* (2000) in ensuring that the questionnaires were complete, in that all questions were answered. The college studied routinely conducts questionnaire surveys on staff and students and possesses a software package to analyse the data from such questionnaires. The availability of this software, and college personnel experienced in its use, resulted in the research questionnaire design following the same format of other college questionnaires, including the Likert scale described earlier. Using this software, college personnel produced analyses of the questionnaire, which are included as appendix 3. The responses were tabulated for each statement, showing the percentage level of agreement with each. As each statement related directly to a question derived from the literature review, it was therefore possible to directly relate the perceptions of the teaching staff to each question arising from the literature review.

Piloting the questionnaire

Cohen *et al* (2000) and Youngman (1984) also stress the importance of not leading the respondent by including any suggestion of an 'expected' response in the statement wording, nor any problematically worded statements. The time taken to complete the questionnaire should also be monitored. The research questionnaire was therefore piloted to a group of four teachers in my presence. One statement, concerned with the adequacy of time for teachers to develop online learning, was subsequently excluded as the four teachers all believed that a 100% 'strongly agree' response was certain. To avoid any suggestion of expected responses, the questionnaire had an even mix of 'positive' and 'negative' statements. To improve understanding, the pilot group changed the wording of one question. The other statements were all considered to be appropriate and understandable. The time taken to complete the questionnaire was also recorded. The content of the covering questionnaire letter was also agreed, including an accurate estimate of the time to complete the questionnaire as an incentive to complete it. The covering letter also includes assurances on issues such as confidentiality and/or anonymity.

Data collection: interviews

In conducting interviews, I was concerned with discovering the teachers' perceptions about the significance of any barriers that might be inhibiting the development of online learning in the college. While I recognised that such perceptions are subjective and personal, residing within the interpretative research paradigm discussed earlier (p. 57), I believe that they nevertheless provided useful research information on barriers to the development of online learning in the college.

Denscombe (1998) discusses the advantages of interviews, such as being able to consider topics in depth and detail based on the ideas, opinions and priorities of interviewees, enabling the researcher to gain particularly valuable insights into the topic. Denscombe also discusses the disadvantages, such as more complicated data analysis and reliability issues arising from the impact of the interviewer, and the

context, on consistency and objectivity. Wragg (1984) advises researchers to carefully consider whether conducting interviews is in fact the best method of gathering data, initially reflecting on the questions to which answers are sought and then decide which data-gathering techniques are most appropriate. Wragg also suggests that interviews may be complementary to other forms of enquiry. This is the case in this research, where the purpose of the interviews is to triangulate the information on barriers to the development of online learning gathered from the questionnaires as well as providing more in-depth information than possible to obtain through questionnaires. Denscombe (1998) agrees that interviews are appropriate ways to collect data from a smaller number of people where “the research would be better served by getting material which provides more of an in-depth insight into the project” (p. 110).

However, as Patton (1990) points out, the quality of the information obtained through an interview is largely dependent on the interviewer.

Wragg (1984) advises interviewers to choose a location for the interviews that makes most sense. For convenience and confidentiality, the interviews were held in my office. As I said earlier in considering ‘ethics’, on reflection this was possibly a mistake, as I had previously taken care to emphasise that the research was being undertaken by me as an OU student and not as the principal. Holding the interviews in a ‘neutral’ office would have further emphasized my role as a researcher. I do not believe, however, that the interview venue affected the honesty of the interview responses. Individual interviews were however held in comfortable chairs, and group interviews around a round table, so were relatively informal. All interviews were held in work time.

Wragg (1984) refers to three types of face-to-face interview techniques: structured; semi-structured; and unstructured. Silverman (2001) discusses the positivist view that unstructured interviews are unreliable research instruments, as interviews do not meet their criteria of generating data that is independent of both the research setting and the interviewer. Denscombe (1998), however, suggests that allowing interviewees to

Speak openly is a better way of gathering information on complex issues where the aim is 'discovery' rather than 'checking', enabling in-depth investigations exploring personal accounts of experiences. Bryman (1988) believes that unstructured interviews allow a respondent to 'ramble' thereby opening up the possibility that important, yet unanticipated, data might emerge which would not have emerged through a structured interview. As the interviews were designed to provide teachers' perspectives on barriers to the development of online learning in the college, a semi-structured approach was therefore adopted, where interviewees were asked a single, open-ended question: "what are the barriers which are currently impeding the development of ILT [online learning] in the college?"

Patton (1990) describes such a question as a 'presupposition' question, as the interviewer presupposes that the respondent has something to say. Cohen and Manion (1980) describe such an interview as informal, while Patton (1990) describes it as a 'standard, open-ended interview', where the interviewer effects are minimized by asking *exactly* the same question and the interview benefits from being highly focused and time efficient. Patton also stresses the importance of asking clear questions that the respondent can understand as part of his/her 'frame of reference' and can therefore respond without any discomfort. Silverman (2001) believes that where an interviewer is seeking to discover 'beliefs about facts' it is important to first of all check that the interviewee has beliefs about the topic under discussion, otherwise the interviewer may be putting words into the interviewee's mouth. Reflecting on this, the question did in fact assume that the respondents believed that online learning development was being impeded and there were barriers. Its wording probably unintentionally reflected my prior knowledge that teachers in the college were not using online learning to any significant extent. On reflection, therefore, an initial question asking the interviewee(s) if they believe there are any barriers to online learning development would have improved the process. However, while no interviewee(s) actually had any difficulty identifying barriers, which suggests that my presupposition was correct, as discussed by Patton (1990) the form of the question may have compromised my 'neutral' stance as interviewer, leading the respondent(s) to believe that there were barriers which *had* to be identified.

Copies of letters inviting interviewees to participate in the research are attached as appendices 4 and 5.

Pilot interview

Wragg (1984) stresses the importance of conducting a pilot interview. This advice was followed, but no change in the process or question resulted, and the pilot interview was included in the research as an individual interview.

Individual Interviews

Ten individual interviews were held. It had been my intention to only interview individually the 5 college teachers who are allocated 4 hours each week to work with other college teaching staff to help them to use online learning as part of their teaching strategy. I believed these teachers had a particular insight into the reasons why their colleague teachers were not using online learning to any significant extent. They were therefore chosen by what Denscombe (1998) describes as ‘non-probability’ sample, where people are chosen deliberately because they have a special contribution to make and/or where the purpose of the research is not to produce results which are generalisable, or where the emphasis is to explore the detail of a situation, when the key players in the field are chosen. Cohen and Manion (1980) call this ‘purposive’ sampling. It had been planned for four part time teachers, chosen at random by my personal assistant from a list of part time teachers, to be interviewed as a group. However, the four were in fact interviewed individually as it was impossible to arrange a time when all could meet as a group. The only other individual interview was held where the individual was unable to attend for a group interview. Each interview lasted between 30 and 45 minutes.

Table 3.1: Individual interviewee profiles

Category	Middle Managers	Teachers	Gender		Teaching Experience (Years)		
			M	F	1-5	5-10	over 10
ILT Staff Developers	1	4	2	3	1	3	1
Individual Teacher using ILT		1		1	1		
Individual PT Teachers		4	2	2	2	2	
Totals	1	9	4	6	4	5	1

Focus group interviews

Patton (1990) observes that focus groups are widely used, particularly in market research, with ‘quite’ credible and useful results. The rationale for the use of group interviews was partly to maximise the number of people who could be interviewed in the time available. Patton discusses focus group interviews, where a group of people are interviewed on a specific topic. He stresses that they are *interviews* and not discussions. According to Patton, the main advantage of focus group interviews is that participants hear each other’s comments and can then consider their own views in the context of the other views, adding to initial comments and hereby enriching the quality of the data. There is no need for the group to reach a consensus, nor is it necessary for them to disagree. Similarly, Denscombe (1998) also believes that the rationale for group interviews is to enable those present to interact with each other and for the discussion to operate at the group level. Other advantages described by Patton (1990) are that focus group interviews are highly efficient, with the views of a number of people gathered instead of only one person. They also provide some quality controls on the data collected, as participants provide checks and balances on each other, weeding out false or extreme views. It is also relatively simple, according to Patton, to assess the extent to which there is a fairly consistent view of the issue being considered by the group. Patton (1990) also discusses some weaknesses of focus group interviews. For example, the group needs to be managed by the interviewer to avoid the domination by one or two people, while conflicts may arise particularly where people in the group know each other. Denscombe (1998) also believes that individual opinions that may be considered unacceptable to the group may be withheld.

Three focus group interviews with college teaching staff were held. Each interview took around 60 minutes. One group comprised of three full time teachers identified by the college online learning staff developers as teachers who are currently using online learning. Another full time teacher similarly identified as an online learning user was interviewed separately as she was unable to attend the group interview. The second group consisted of two full time teachers identified by the online learning staff developers as not using online learning. It had originally been my intention to discover if there were any gender barriers to the use of online learning. To this end, three full time female teachers were chosen at random by my personal assistant without my involvement from a list of full time female teachers and interviewed as the third group. However, due to time restraints, it was not possible for me to pursue the ‘gender-barriers’ aspect of the research and this group became, *de facto*, a randomly selected focus group, albeit selected only from full time female teachers. While this group identified a number of barriers to online learning, none of them were apparently gender-related. The notion of gender in relation to online learning was therefore not included in the theoretical framework of the research.

Table 3.2: Focus group interviewee profiles

Category	Middle Managers	Teachers	Gender		Teaching Experience (Years)		
			M	F	1-5	5-10	over 10
Group using ILT	1	2	2	1		2	1
Group not using ILT		2	2		2		
Female Group		3		3	2	1	
Totals	1	7	4	4	4	3	1

Sampling for interviews.

The method used to generate the sample of the 5 online learning staff developers was discussed earlier. While I intended part time and female teachers to be included as random samples, the reality was that availability for interview became an issue. The result was that alternatives were chosen so that the sample probably ended up being more ‘opportunity’ than ‘random’. Wragg (1984) discusses the problem of deciding whom to interview, considering random and opportunity sampling as the probable

choice to be made. However, opportunity sampling was *de facto* the method adopted. Wragg believes that an opportunity sample is quite acceptable, provided the researcher makes it clear that this option has been chosen, and does not make “over-bold claims or inferences from [the] interview data” (p. 181).

Data analysis: interviews

Denscombe (1998) refers to the large amount of time it takes to properly transcribe the audio-tapes used to record interviews. However, despite the time costs, Patton (1990) believes that the full transcription of taped interviews is the best way to obtain interview data. The interviews were therefore all taped and transcribed in full. I was fortunate, as principal, to be able to use my personal assistant to transcribe the tapes. I was careful to follow Patton’s advice in making sure that the tape recordings were of high technical quality to support this process. Nevertheless, I also followed his advice in taking notes during the interviews should there be any subsequent problems in transcription. This did prove useful, as the sound quality on some tapes was not as high as on others. I also followed Denscombe’s (1998) advice and noted any “significant bits of non-verbal communication” (p.28). Immediately after each interview, I recorded, as also suggested by Denscombe, any particular aspects of the behaviour of the interviewee(s) that provided any additional insight to the interview data. This process mitigated somewhat the fact that the transcription process had not enabled me to add any personal annotations in the transcript of any relevant memories of the interview not recorded elsewhere, a ‘good-practice’ suggestion by Denscombe (1998).

As I did not need to transcribe the tapes, I was therefore able to spend more time personally analysing the transcripts. While Denscombe (1998) refers to the availability of computer packages specifically designed to analyse data gathered from interviews, I chose not to do so as I believed that the time spent identifying; purchasing; learning how to use; and using such a package would have taken up far more of my time than that taken up through a personal analysis of the data. Based on the advice of Cohen *et al* (2000), I therefore produced a summary analysis of each

transcript, cross-referenced to the line number of the full transcript as advised by Denscombe (1998). The summary analysis recorded only those statements made during each interview which I considered relevant to the research question, classified under the relevant 'barrier' identified in the literature review, plus any additional barriers which emerged. Patton (1990) calls this process a 'case analysis', leading onto a 'cross-case' analysis, using what Cohen *et al* (2000) describe as 'generalizations', by counting the number of 'mentions' of each barrier to quantify the incidence of each. I therefore began with a list of all of the barriers to the development of online learning identified in the literature review. As advised by Denscombe (1998), I allocated a unique code to each of these barriers. When a barrier was mentioned in an interview, I coded it against one of the listed barriers. I used a 'five-bar gate' method of recording the number of times each barrier-code was identified during the interviews. This process of counting the number of 'mentions' of each barrier enabled me to develop a list of barriers in priority order, thereby identifying any which appeared to be particularly relevant in explaining why the use of online learning in the college is largely under-developed.

Conclusion: Adopting the principles of good research.

The data collected, the conclusions drawn from the data and the way the conclusions are reported, were central to the validity of research. In judging whether a research report corresponds to an external reality, a number of different frameworks have been suggested to assess the validity of research. A summary of the frameworks suggested by Guba and Lincoln (1985;1989); Hammersley (1992); Evers and Lakomski (1991) suggests that there are three core principles of good research: representativeness, coherence and change. Within these three core principles, seven common characteristics of good research were identified. These principles are shown in italics, followed by a statement on how the research on the college incorporated these characteristics. *First, good research is representative.* While all teaching staff, full and part time, had the opportunity to contribute to the study through a questionnaire, only 28% of part time teachers responded. As 56% of full time teachers responded, their perceptions are likely to predominate, albeit that the questionnaire data analysis

does identify instances where the perceptions of full and part time teachers are significantly different. Similarly, as it was not possible, due to availability, to interview as many part time teachers as full time, the perceptions of full time teachers also predominated the interview data. Overall, therefore, while the data gathered does reflect the perceptions of both full and part time teachers, it is more representative of full time staff perceptions. *Second, good research corresponds with some external reality.* The research did correspond to external reality in seeking to ensure that the research data “reflect the truth, reflect reality and cover the crucial matters” (Denscombe, 1998:241) and the methods for obtaining the data did seek to “measure suitable indicators of the concept and provide accurate results” (ibid:241). *Third, good research is validated by respondents from the research setting which goes beyond affirmation of the truthfulness of the events or activities.* In the college studied, an action plan was produced to address any priority issues identified and all research respondents will be given the opportunity to validate any strategies for change which emerge from the research. *Fourth, good research is grounded in the data.* I believe that the research was based on the data gathered. *Fifth, good research successfully changes what is.* An action plan for change in the college studied has emerged as a direct result of the research. This explanation is expanded below. *Sixth, good research is consistent and coherent.* I believe this was achieved in the research. *Seventh, the research is relevant in some specified way.* The research was concerned with the development of online learning, a topic with a high level of relevance to the whole education sector.

Expanding on criteria five above, the specific purpose of educational research is improvement. There are three kinds of improvement that can emerge and against which the research can be judged (Griffiths, 1998):

- on its immediate and general impact on practice (Hargreaves, 1996);
- on its impact on theory rather than practice (Ranson, 1996), with the long term aim of broadening the conception of learning and pedagogic practice;
- on the extent to which it educates the people who carried out the research, at least to the extent of developing their own personal knowledge.

In judging the research in the college against these criteria, the research will indeed have an immediate impact on current practice in the college, as the need for change did emerge from the data. Subject to the caveats about generalising from a case study discussed in this chapter, the research could also have an impact on theory as it will certainly be of interest in the FE sector and possibly the schools and university sectors as it could broaden the current understanding of the implications of online learning development on learning and pedagogical practice. Subject again to the generalisability caveats, the research may also have an impact on practice in the FE sector. Finally, the research process has certainly developed the personal knowledge of the researcher.

CHAPTER FOUR: DATA ANALYSIS

As described in the previous chapter, questionnaires were used to establish the level of support by the college teaching staff of the benefits, detriments and barriers relevant to the development of online learning in the college, each of which was converted into a statement in the questionnaire. Interviews were also used to gather information about barriers to online learning development. The data acquired using these methods is analysed in this chapter, followed by a summary of the main findings. Questionnaire data is analysed first, followed by an analysis of the interview data. For both analyses, the focus is on establishing the views of the college teaching staff on the questions raised in the literature review.

Questionnaire analysis

Questionnaires were sent to 89 full time and fractional teaching staff at the FE college, of which 50 completed questionnaires were returned for analysis, a response rate of 56%. A further 130 questionnaires were also sent out to part time sessional teachers in the college, of which 36 were returned, a response rate of 28%. In the light of the low response rate, the responses from part time sessional teachers are shown separately for comparison with the responses of full time and fractional teachers. The abbreviation ‘FT’ denotes ‘full time and fractional’, ‘PT’ denotes ‘part time sessional’ teaching staff. The statement number from the questionnaire is indicated at the beginning of each statement. The categories ‘strongly agree’ and ‘agree’ are combined under ‘agree’ in each table. Similarly, the categories ‘strongly disagree’ and ‘disagree’ are combined under ‘disagree’ in each table. I believe this more clearly shows the level of support for each statement. The level of ‘strong agreement’ or ‘strong disagreement’ is, however, shown in brackets against each response. Responses are rounded to the nearest whole number. The full analysis of each response is shown in appendix 3.

Through the questionnaire, the teachers were asked their opinion on the following questions:

Does learning online supports the constructivist approach by enabling students to take more responsibility for their own learning?

There were six statements in the questionnaire that sought the opinions of the teaching staff on this question.

Table 4.1

Statement(S)6:*Online learning encourages students to become more active learners, ‘seeking’ instead of ‘receiving information.*

	Agree%	Neutral %	Disagree%
FT	62(18strongly)	26	12(0strongly)
PT	69(22strongly)	22	9(3strongly)

Statement(S)7:*Online learning does not improve the learning process by enabling students to take more responsibility for their own learning.*

	Agree%	Neutral %	Disagree%
FT	18(0strongly)	26	56(8strongly)
PT	11(8strongly)	22	67(14strongly)

S17:*Students will not be able to cope with the increased information available through online learning.*

	Agree%	Neutral %	Disagree%
FT	24(4)	22	54(2)
PT	25(6)	22	53(8)

S18:*Online learning will not result in students becoming isolated and unsupported.*

	Agree%	Neutral %	Disagree%
FT	46(4)	22	32(6)
PT	55(8)	14	31(8)

19:*Online learning results in too much flexibility, which will disadvantage a novice or unsophisticated learner.*

	Agree%	Neutral %	Disagree%
FT	52(6)	14	34(4)
PT	42(19)	22	36(3)

S21: *An inexperienced or weak learner may be unable to take the responsibility for his/her own learning expected with online learning.*

	Agree%	Neutral %	Disagree%
FT	80(22)	8	12(4)
PT	80(39)	6	14(0)

The data suggests that most FT (62%) and PT (69%) teachers believe that online learning does encourage students to become more active learners, ‘seeking’ instead of ‘receiving’ information (questionnaire statement 6). About the same number of PT (67%) but slightly reduced FT (56%), teachers also believe that learning improves as a result of students taking more responsibility for their own learning (Statement 7). However, there is nevertheless data which indicates some uncertainty about the validity of these ‘benefits’, with around 40% FT and 30% PT teachers either unsure or do not agree that they are ‘beneficial’ (S6 and S7).

The uncertainty of some teachers about whether online learning improves learning could be due to teachers’ concerns about some learners’ ability to cope with learning online, as it is clear from the data that a large majority of FT and PT (80%) teachers believe, many strongly, that inexperienced or weak learners will be unable to take the responsibility for their own learning required with online learning. For such students, the development of online learning would be detrimental to their learning experience (S21). Furthermore, the data indicates that it is the flexibility attached to online learning that might be problematic for these learners (S19). The data also indicates that, while a small majority of FT (54%) and PT (53%) teachers do believe that the students in the college would be able to cope with the increased information available online, the rest are either unsure or disagree (S17). Bringing together this data (S17, S19, S21) suggests that many college teachers consider many of their students to be inexperienced, weak or unsophisticated learners for whom online learning would be problematic. The fact that a small majority of FT teachers (54%) and a large minority of PT teachers (45%), either believe that, or are unsure if, their students will become isolated and unsupported when learning online supports this suggestion (S 18). Examples of the written comments from the questionnaires provide an indication of the teachers’ concerns:

“They [students] may be ‘frightened’ or lack confidence in using the technology, may need guidance answering in a different way.”

“ILT [online learning] not useful, especially without pre-assessment of IT skills, for new or unsophisticated learners

Does online learning improve achievement and student motivation?

There were two statements in the questionnaire that sought the opinions of the teaching staff on this question.

Table 4.2

S25:Online learning will not improve levels of student achievement.

	Agree%	Neutral %	Disagree%
FT	20(4)	40	40(6)
PT	22(6)	25	53(8)

S13:Online learning does not improve student motivation

	Agree%	Neutral %	Disagree%
FT	24(6)	34	42(6)
PT	34(14)	20	46(3)

A large minority of FT (40%) and a small majority of PT (53%) teachers believe that online learning improves student achievement. The rest of the FT teachers were either believe it does (20%), or unsure (40%). The remaining PT teachers either believe that online learning does not improve student achievement (22%), or are unsure (25%). What is clear is that many teachers do not yet believe that online learning improves student achievement (S25).

The data on the online learning effect on student motivation paints a similar picture. A large minority of the FT (42%) and PT (46%) teachers believe that learning online will increase student motivation. Some respondents wrote:

“ILT great source of up-to-date information, students excited by new learning”.

“May motivate some students. Provides an alternative learning method, adding variety to teaching and learning”.

“Encourages motivation, professional presentation of work, students can work at own pace (fast-track), very effective where successful”.

The rest of the FT teachers either believe that online learning does not improve student motivation (24%), or are unsure (34%). The remaining PT teachers either believe that online learning does not improve student motivation (34%), or are unsure (20%). Many teachers, therefore, do not yet believe that online learning improves student motivation (S13).

The level of uncertainty about the effects of online learning on achievement and retention possibly reflects the inexperience of many teachers of using online learning, and hence their experience of its effects.

Will the teacher’s role diminish with online learning?

Table 4.3

S12:Online learning improves learning, but only if used in addition to effective traditional learning methods.

	Agree%	Unsure%	Disagree%
FT	80(38)	16	4(0)
PT	89(47)	6	5(0)

S16:The use of online learning means that students will need more tutor support

	Agree%	Neutral %	Disagree%
FT	34(4)	38	28(0)
PT	36(8)	31	33(0)

S10:*When other students are learning independently with online learning, I [the teacher] will be able to provide more personal support to those students who need it.*

	Agree%	Neutral %	Disagree%
FT	82(10)	14	4(0)
PT	75(14)	17	8(3)

S22:*With online learning my [the teacher's] contact with students will not reduce.*

	Agree%	Neutral %	Disagree%
FT	64(14)	20	16(2)
PT	61(3)	17	22(3)

S24:*With online learning, my workload will not increase.*

	Agree%	Neutral %	Disagree%
FT	14(2)	32	54(12)
PT	28(3)	29	43(0)

The data indicates that the majority of FT (64%) and PT (61%) teachers do not believe that their contact with students will reduce, albeit that some are unsure and a relatively small minority (16% FT, 22% PT) believe their contact will reduce, suggesting teachers do not believe their role will diminish (S22). In fact, the data suggests that a small majority of FT (54%) and a large minority of PT teachers (43%) believe that their workload will actually increase as a result of online learning development (S24). There is some uncertainty about whether students will need more support from their teachers when working on line, with an even, three-way, split of both FT and PT teachers who believe they will, will not, or are unsure (S16). Clearly, if students do need more support, there will be an increased, not a diminished, role for the teacher. The large majority of FT (82%) and PT (75%) teachers in fact believe that they will be able to spend more time supporting students who need it when other students are working independently online (S10).

The data also reveals that a large majority of FT (80%) and PT (89%) teachers believe, many strongly, that online learning will only improve learning if used in addition to, and not instead of, traditional teaching methods (S12). This data, therefore, suggests that the college teachers believe that online learning will be another learning opportunity for students operating alongside many others used by the

teacher, with no detrimental effect on the need for teacher support. The importance of this aspect of online learning development from the teacher’s perspective is evidenced by the number of written comments made, such as:

- “[online learning] is an added tool in a tutor’s toolbox.”
- “[online learning is] not suitable for all elements of a course. Good for learning and revising the knowledge but skills need practical application and practice.”
- “If [online learning] is used as only one tool within the process and all students have equal opportunity to use the very best machines available it is an excellent alternative and support to the human resource.”
- “[Online learning] is a useful, additional tool which can be used for most learners. However, its use requires specific teaching skills and is not a ‘quick fix’ alternative to more traditional forms of teaching.”

Is learning more accessible online?

Table 4.4
S3: *Online learning enables learning to occur at a time, place and pace convenient to the learner.*

	Agree%	Neutral%	Disagree%
FT	88(14)	12	0
PT	97(31)	3	0

S4: *Online learning enables learning tasks to be repeated as often as required, until the student acquires the intended knowledge and understanding.*

	Agree%	Neutral %	Disagree%
FT	86(22)	8	6(0)
PT	94(23)	3	3(0)

Clearly, a very large majority of both FT (88%) and PT (97%) teachers believe that that online learning enables learning to occur at a time, place and pace convenient to the learner, which is obviously beneficial to learning and the learner (S3), subject to a number of caveats which are discussed later. One teacher wrote:

“[Online learning] enables learning at own pace. Useful for absentees. Good to reinforce and revise initial classroom learning.”

Similarly, a large majority of FT (86%) and PT (94%) teachers believe that online learning enables learning tasks to be repeated as often as required, until the student acquires the intended knowledge and understanding (S4). Written comments on this issue included:

“[Online learning] will enrich student learning if managed properly – students missing classes will be able to catch up easily.”

“Useful and effective for established learners. Allows learners to work at own pace. Some learners work quicker than others.”

Is communication improved when students learn online?

Table 4.5
S8:*Online learning, through e-mail and bulletin boards, will not improve opportunities for students to communicate with each other and with lecturers.*

	Agree%	Neutral %	Disagree%
FT	12(2)	12	76(12)
PT	14(3)	28	58(8)

A significant majority of FT (76%), and a small majority of PT (58%), teachers believe that communications will improve with online learning. The high level of uncertainty for PT teachers, 28% compared with 12% for FT, may well reflect concerns about their own level of access to the college online learning infrastructure that, as they are in college less, might mean that they are unsure how easily students will be able to communicate with them online.

Does online learning increase the availability of relevant and interesting information?

Table 4.6

S9:Online learning will not increase the availability of information that is interesting and relevant to student learning.

	Agree%	Neutral %	Disagree%
FT	6(0)	10	84(20)
PT	6(3)	11	83(22)

S15:As online learning is only concerned with gathering information and not its effective use, effective teaching/learning will suffer.

	Agree%	Neutral %	Disagree%
FT	18(4)	14	68(8)
PT	31(6)	22	47(17)

S28:With online learning, students will waste their time searching for inappropriate materials and activities.

	Agree%	Neutral %	Disagree%
FT	36(10)	30	34(4)
PT	36(14)	31	33(3)

The data reveals that a large majority of FT (84%) and PT (83%) teachers do believe that online learning will increase the availability of interesting information relevant to student learning, with little disagreement (S9). However the data also indicates that the teachers, particularly part time, are less certain (32% FT, 53% PT) that the increased amount of useful information will be used effectively, with detrimental effects on learning. This is because the emphasis may become the gathering of information rather than its effective use (S15). There is also much uncertainty about whether students will waste their time searching for inappropriate materials and activities when learning online, with an even, three-way, split for both FT and PT teachers in those who agree, disagree or are unsure (S28). Written comments on this problematic effect of learning online include:

“Some students can easily be distracted by chat-line, e-mail and the Internet”.

“Having access to the Internet is too much of a temptation to some students who load and play games.”

Does online learning increase individual learning opportunities?

Table 4.7
S5:*Online learning improves learning by increasing individual learning opportunities.*

	Agree%	Neutral %	Disagree%
FT	66(20)	26	8(0)
PT	80(19)	14	6(0)

S11:*Online learning restricts opportunities for individual students to adopt the learning style most appropriate for them.*

	Agree%	Neutral %	Disagree%
FT	33(2)	35	32(2)
PT	30(11)	28	42(6)

S20:*Online learning will be able to diagnose the individual learning needs of a student.*

	Agree%	Neutral %	Disagree%
FT	30(2)	26	44(4)
PT	25(0)	22	53(14)

A large majority of PT (80%) and a significant majority of FT (66%) teachers believe that online learning will be able to increase individual learning opportunities, thereby improving learning. However, a significant number of FT teachers (26%) are unsure (S5). There is however much uncertainty from FT and PT teachers about whether online learning will increase opportunities for learners to adopt their most appropriate learning style, with similar numbers believing it does, does not, or are unsure (S11). There is similarly some uncertainty about whether online learning will be able to diagnose the individual learning needs of a student, with around two thirds of FT and PT teachers believing it will not, or are unsure (S20).

Does the development of online learning improve learning?

Table 4.8

S31:*I[the teacher] believe that the development of online learning will improve the student learning experience.*

	Agree%	Neutral %	Disagree%
FT	82(20)	14	4(2)
PT	75(17)	14	11(0)

S32:*Using online learning will not improve my effectiveness as a teacher.*

	Agree%	Neutral %	Disagree%
FT	18(0)	26	56(8)
PT	14(3)	25	61(6)

S49:*I would want to develop online learning in my teaching, even if senior management did not push its development.*

	Agree%	Neutral %	Disagree%
FT	78(18)	14	8(2)
PT	66(14)	23	11(0)

The data indicates that a large majority of FT (82%) and PT (75%) teachers believe, many strongly, that their student learning experience will improve if online learning is developed, with little disagreement (S31). A small majority of FT (56%) and PT (61%) teachers also believe that their effectiveness as teachers will increase, although many are unsure or do not believe their effectiveness will increase (S32). This combined data is evidence that most college teachers do believe that online learning will improve student learning. Furthermore, the fact that a significant majority of FT (78%) and PT (66%) teachers would want to develop online learning, even if not pressurised by senior management, with very few disagreeing, is additional evidence of this belief (S49).

The following section analyses the questionnaire responses in the college studied about the relevance in the college of barriers to the development of online learning identified in the literature review.

Barriers affecting the role of the teacher

The need for the teacher to manage the increasing volume of information available online.

Table 4.9

S41:I know how to help students to acquire the skills to enable them to convert information from online sources into relevant knowledge and understanding.

	Agree%	Neutral %	Disagree%
FT	55(2)	19	26(2)
PT	58(8)	25	17(6)

S42:I will need to be the ‘gatekeeper’ for the students to ensure that the information they acquire online is relevant to their learning.

	Agree%	Neutral %	Disagree%
FT	78(10)	16	6(2)
PT	78(17)	8	14(0)

The data indicates that a large majority of FT and PT teachers (78%) believe that they will need to act as ‘gatekeepers’ to ensure that the information students acquire online is relevant to their learning (S42). There is, however, data evidence that many teachers (45% FT and 42% PT) are not confident that they have the skills to be able to help students to convert information obtained online into relevant knowledge and understanding (S41).

Online learning will need to be incorporated into the core curriculum by teachers

Table 4.10

S34:I [the teacher] do not have the skills to confidently use online learning in curriculum delivery

	Agree%	Neutral %	Disagree%
FT	32(8)	18	50(6)
PT	30(11)	11	59(19)

The data indicates that, while around half of all FT (50%) and PT (59%) teachers believe that they have the skills to use online learning in their teaching, around half do not have the skills, or are unsure if they have them or not (S 34). The lack of such

skills by so many teachers in the college is clearly a barrier to the development of online learning in the college. Written comments in response to this statement included:

“Teachers will have to learn the appropriate use of [online learning] – it can enhance learning but only if resistance to change is overcome. There is a learning curve which can take time and appropriate resources must be allocated to its implementation.”

“Full understanding for tutors. I am new to the College and understand the principles. I need to understand how to use it to enhance learning.”

Teachers lack IT skills

Table 4.11

S14:*I [the teacher] do not know how to design, develop and use online learning.*

	Agree%	Neutral %	Disagree%
FT	22(6)	10	68(18)
PT	49(11)	11	40(20)

S33:*Online learning staff development should focus on helping me to use online learning to teach my own subject.*

	Agree%	Neutral %	Disagree%
FT	94(36)	4	2(0)
PT	86(33)	11	3(0)

S35:*I [the teacher] have little or no experience in the practical application of online learning.*

	Agree%	Neutral %	Disagree%
FT	22(4)	14	64(8)
PT	31(8)	11	58(17)

S36:*I am able to access and retrieve relevant subject-focused information through the Internet and college network.*

	Agree%	Neutral %	Disagree%
FT	66(14)	22	12(0)
PT	61(11)	17	22(6)

The data provides overwhelming evidence (94% FT, 86% PT) that any staff development in online learning should focus on helping teachers to use online learning in their own subjects, rather than on generic IT skills which may not be directly relevant to their own teaching (S 33). The other data on the issue of the level of IT skills for teachers reveals that 64% of FT and 58% of PT teachers believe they have experience of using online learning in the classroom (S 35). Similarly, 66% of FT and 61% of PT teachers say they are able to access and retrieve relevant subject-focused information through the Internet and college network (S36). However, while 68% of FT teachers also believe they know how to design, develop and use online learning, only 40% of PT teachers believe they have the same knowledge and skills (S14). The data therefore indicates that many FT and PT teachers in the college may lack the necessary IT skills to be able to successfully support the delivery of online learning. Written comments included:

“tutors would need good or better IT skills in many cases. Training and assessment vital first for all!”

“Part-time staff are lacking skill to develop ILT, part-time/mature students may not have skills to access ILT and no time to train in use.”

Teachers’ current concepts of teaching and learning

Table 4.12
S27:*I [the teacher] will only use online learning if it enables me to continue to teach in the same way.*

	Agree%	Neutral %	Disagree%
FT	6(2)	22	72(8)
PT	11(0)	25	64(6)

The data indicates that a sizeable majority of FT (72%) and PT (64%) teachers are willing to change the way they teach when they use online learning, with very few saying they would not change their current teaching style, with 22% FT and 25% PT unsure (S27).

Copyright and intellectual property rights

Table 4.13
S26:*I [the teacher] am unwilling to place my teaching material onto the college network.*

	Agree%	Neutral %	Disagree%
FT	10(2)	12	78(30)
PT	17(3)	28	55(17)

S 46:*I prefer to create my own learning materials, even if there are good quality learning materials available prepared by others.*

	Agree%	Neutral %	Disagree%
FT	20(6)	26	54(4)
PT	17(6)	28	55(8)

The data indicates that a large majority of FT teachers (78%) are willing to place their material onto the college network, suggesting they are unconcerned about others having access to ‘their’ material. Only a small number of FT teachers (22%) are unwilling or not yet sure. However, only a relatively small majority (56%) of PT teachers are willing to place their material onto the network, with almost half (44%) unwilling or unsure, probably reflecting the relative insecurity of their employment and their concern that their services might not be needed if the college has access to their material (S 26). The data also indicates that, while 54% of FT and 55% of PT

teachers would use good quality learning materials prepared by others, almost 50% would either prefer to create their own materials, or are unsure if they would or not (S46). For PT teachers, this could be further evidence of their concern about future employment prospects if they are not using their own materials. For both FT and PT teachers, it could be evidence that there is still a lack of confidence in the availability of ‘good quality’ materials. However, whatever the reason, should 50% of teachers not use the learning materials prepared by others and available to them via the college Intranet, there could be an unnecessary duplication of effort that could divert staff time away from other activities. This would potentially reduce any potential benefits of using online learning. Written comments included:

“Development of materials needs to be shared generally with everyone whether ILT or not.”

Barriers affecting students.

With online learning, students will need support to change their learning style

Table 4. 14

S37:Students expect me to personally provide them with the information they need to achieve their qualifications.

	Agree%	Neutral %	Disagree%
FT	62(10)	12	26(2)
PT	67(19)	22	11(0)

S38:Online learning requires students to be more active learners. My students will be uncomfortable with this.

	Agree%	Neutral %	Disagree%
FT	32(2)	30	38(2)
PT	33(8)	17	50(8)

I have already shown data evidence of teaching staff concerns about the ability of many students to accept more responsibility for their own learning (Table 4.1). This concern is further evidenced by the data that 62% of FT and 67% of PT teachers believe that their students currently expect them to personally provide them with the

information they need to achieve their qualifications. This data indicates that students taking more responsibility would involve, for many students, a significant change in how they learn (S 37). Written comments included:

“[With online learning] some students feel they are not being ‘taught’, are used to traditional methods.”

Furthermore, and again consistent with Table 4.1, the data indicates there is much uncertainty about students being able to become more active learners, with 62% of FT and 50% of PT teachers either believing that their students will be uncomfortable with this or are unsure if they will or not. Only 50% PT, and 38% FT, teachers believe that their students will be comfortable if they have to become more active learners (S 38).

Students need new skills

Table 4.15

S39:My students do not know how to access the Internet and college network.

	Agree%	Neutral %	Disagree%
FT	16(0)	26	58(12)
PT	17(0)	22	61(19)

S40:My students need new skills to be able to convert information from online learning sources into relevant knowledge and understanding.

	Agree%	Neutral %	Disagree%
FT	70(12)	16	14(4)
PT	80(8)	14	6(0)

The data indicates that 42% of FT and 39% PT teachers either believe their students do not know how to access the Internet and college network, or are unsure if they do (S39). Similarly, the data that a large majority of FT (70%) and PT (80%) teachers believe that their students need to develop new skills to convert online information into relevant knowledge and understanding is further evidence of a lack of student skills as a barrier to online learning development (S40). A written comment was that:

“Students will need to learn how to use ILT effectively for their own learning, if it is to be successful.”

Barriers arising from resources.

Accommodation for online learning

Table 4.16

S43:My students currently cannot access a college computer whenever they need to.

	Agree%	Neutral %	Disagree%
FT	68(41)	8	24(6)
PT	42(8)	22	36(11)

S44:Learning would improve if classroom, computer, text-book, group and individual learning opportunities were gathered together in curriculum-focused centres.

	Agree%	Neutral %	Disagree%
FT	68(28)	26	6(0)
PT	78(25)	11	11(0)

As the respondents would have included IT teachers, whose students would have easy access to computers, the data that 68% of FT teachers believe, 28% strongly, their students do not have easy access to computers would suggest that student access to computers is a major barrier to the use of online learning. Moreover the data that 64% of PT teachers also believe that their students do not have easy access, or are unsure if they do or not, confirms the significance of this barrier (S 43). The data that most teachers, 68% of FT (41% strongly) and 78% of PT (25% strongly), believe that learning would improve if different learning opportunities were gathered together in curriculum-focused centres, with only 6% FT and 11% PT disagreeing, suggests that the current accommodation for computer access is not appropriate if access to, and use of, online learning is to be maximised in the college. Written comments on this issue included:

“Access to PCs in each classroom would enable more flexibility of learning/teaching strategies.”

“Prevent one curriculum area from keeping all IT resources to themselves.”

“Access to PCs in each classroom would enable more flexibility of learning/teaching strategies. Lack of PCs in College will be limiting.”

Learning resources

Table 4.17

S45:There is currently a lack of suitable software to support learning.

	Agree%	Neutral %	Disagree%
FT	68(44)	14	18(0)
PT	69(31)	28	3(0)

The data that 68% of FT and 69% of PT teachers believe, many strongly, there is currently a lack of suitable software to support learning indicates that a lack of learning resources will be a further ‘resources’ barrier to the development of online learning in the college (S45).

Barriers arising from technical support.

Table 4.18

S47:There is adequate technical provision to support any development of online learning.

	Agree%	Neutral %	Disagree%
FT	28(4)	15	57(21)
PT	14(3)	42	44(8)

S48:The college network is network is not sufficiently reliable to support any development of online learning.

	Agree%	Neutral %	Disagree%
FT	44(20)	22	34(2)
PT	31(8)	61	8(3)

The data clearly indicates that most teachers (72% FT, 86% PT) do not agree that there is currently adequate technical provision in the college to support online

learning development (S47). Furthermore, 92% of PT and 66% of FT teachers are not confident in the reliability of the college network, indicating a significant barrier (S48). Written comments included:

“Need to have computers and printers which are faster and more reliable in the classroom. Have tried to let students discover internet sites for research, computers very slow, often printer doesn’t work so it means demotivated students and support is very patchy at times. However, I do feel that information technology can enhance learning.”

Barriers arising from management

Table 4.19
S23:Online learning is not being developed by management as a cost saving action.

	Agree%	Neutral %	Disagree%
FT	47(4)	37	16(4)
PT	32(12)	47	21(3)

47% FT, and 32% PT, teachers do not believe that managers are developing online learning to save money. However, most of the rest are unsure. However, as the data from Table 4.9 indicates that teachers would themselves develop online learning even if not pushed by management to do so, any suspicion of managers’ motives is unlikely to prevent teachers from developing online learning in the college studied.

Additional barriers identified through open questions in the questionnaire.

As stated in chapter 3, following piloting a ‘statement’ related to the amount of time available to teachers to develop online learning was excluded from the questionnaire, as a 100% ‘agree’ response was anticipated. It was decided instead to include an ‘open’ question (S50) which asked for comments on any additional barriers not included, with a view to establishing, without being prompted through the questionnaire, the extent to which teachers believe the lack of time is a barrier to online development. There were, as a result, far more written comments about this

aspect than any other questionnaire statement, which is indicative of its importance to teachers in the college. The written comments were:

“Time should also be given for all staff at all levels to work through and become familiar with [online learning].”

“The time available [to teachers] to develop students’ ability to use [online learning] sources effectively is important.”

“Time and secretarial support will be needed to develop [online learning] Staff will need training over summer, not term-time or DD hours.”

“Time for staff development/training. Time to enable staff to create [online learning] learning materials.”

“Timescales and resources to develop or accumulate appropriate [online learning] facilities and materials. This will take time and effort. A half-hearted approach will fail as will any inadequately funded, resourced and supported project.”

“Time to develop [online learning] materials and approaches to be allocated.”

“Need time to develop [online learning] material.”

“The tutor will need to spend extra time creating resources to help [online learning].”

“Time should also be given for all staff at all levels to work through and become familiar with [online learning].”

2. Interview analysis

10 individual interviews, plus three focus group interviews were held. The focus groups were:

- Three teachers currently using online learning: ‘Users group’.
- Two teachers currently not using online learning: ‘Non-users group’
- Three female teachers: ‘Female group’.

Each interviewee, individual and group, were asked the same question, which was: “What do you think are the main barriers to the development of online learning in the college?”. The interview data is analysed in a similar way to that adopted for the questionnaires. Initially, the interview data was categorised under the barrier ‘themes’ used in the questionnaire analysis to establish the extent to which the same barriers were identified during the interviews. The interview data was then analysed to produce a ‘ranking’ of barriers to show the order of their relevance from the perspective of the interviewees.

The following codes are used to identify which individual interviewee made the comments shown:

5 individual ‘online learning’ staff developers:	SD 1-5
4 individual part time teachers:	PT 1-4
1 individual ‘online learning’ user:	UI

Codes for focus groups are as follows:

‘Online learners’ user group:	UG
‘Online learners’ non-user group:	NUG
Female Group:	FG

Barriers identified affecting the role of the teacher.

Teachers lack IT skills

Five individual interviewees (SD1, SD2, SD3, SD4, UI) and all three focus groups considered aspects of teacher IT skills, or lack of them, to be a barrier to the development of online learning in the college.

One interviewee (SD2) considered that the recent change, whereby teachers were no longer required to obtain a 'generic' IT qualification but were instead supported in using IT to teach their own subject "*had helped enormously*" in removing a barrier to teachers acquiring appropriate IT skills. She was, however, concerned that part time teachers had not had access to the same level of encouragement as full time teachers. Another interviewee (SD3) was concerned that groups of teachers with an interest in the same curriculum were unable to attend the same training session, resulting in much duplication of training without the benefit of group interaction during the sessions. Lack of confidence in teacher IT skills, and a reluctance to admit to it, often resulting in a "*bluff response*" was identified as a barrier (SD4). The 'users' focus group also identified a lack of confidence as a barrier to teachers using online learning, with one group member observing that:

"My biggest problem is getting [trainee teachers] to use IT and not becoming threatened by it. When we say '[you have] got to use IT in your teaching, you have got to use IT to create your handouts, you have got to create something that is interactive' then people start saying 'I can't do that' " (UG).

The non-user focus group believes that there are many teachers who can't use computers. The need for staff development if teachers are to acquire the skills to be able to use online learning effectively was, therefore, a recurring message from the interviewees, but lack of time to attend staff development sessions was identified as a significant barrier. There was also a criticism of the current staff development

programme for online learning from two interviewees (SD3, UG) who said it was too basic. The users focus group also suggested that the teachers may be reluctant to use online learning because they are unaware of its benefits, saying:

“You have to show people that [online learning] makes life easier for them.” (UG).

Lack of teacher time

Five individual interviewees (SD1, SD2, SD4, UI, PT3) and all three focus groups identify teachers’ ‘lack of time’ as a significant barrier to the development of online learning in the college. A practical illustration of how the lack of time inhibits the development of online learning is provided by one interviewee, who comments:

“If you are going to teach something in the traditional way, you do your lesson preparation and it doesn’t take very long because you know what you are doing. If you are using [online learning], you have to find out either what is already available or develop your own resources, which takes quite a bit of time. Because you are doing something in a new way, it is going to take longer. Even with the best will in the world, you don’t even have that time.” (SD1).

Other comments include:

“The biggest barrier is time: staff not having the time.” (SD2).

“You can spend hours and hours trying to find appropriate [ILT resources]. There is a lot of stuff out there, but not particularly right a lot of it.” (SD2).

“How do we create all this work for all these students if we have to do so much contact time and then do a duty and then outreach with so much travelling. Where is the development time?” (UI).

“We’re far too busy to actually have a go at [online learning]. With the Inspection and everything else that comes along, every minute of the day is taken.” (NUG).

“I know it is only an hour or two hours [a week for online learning training] but it is really difficult to find that time.” (FG).

“Part-time lecturers: firstly the lecturer might not have the skills themselves to use [online learning], bearing in mind the College offers a lot of training opportunities for them but their other commitments may not allow them to actually take the time to do that training which I have to say is very widely available which I think is positive.” (FG).

The interview data therefore indicates that, while the college does offer opportunities for teachers to develop their online learning skills, teachers say that they do not have the time to take advantage of them. Neither, according to many interviewees, do they have the time to develop online learning materials, which is an obvious, and essential, pre-requisite to the use of online learning in the classroom. One interviewee (SD4), however, also suggested that ‘lack of time’ is a “*convenient tag that people raise*” in response to any new development which requires teachers attention in a pressurised environment. The focus group for ‘non-users’ of online learning was particularly vociferous in identifying the lack of staff skills due to lack of time. Comments included:

“We are struggling [with online learning] because we haven’t taken the course yet. We have so many courses to take.” (NUG).

“When you have 37 hours/week contact, you are struggling a bit to fit [online learning development] in.” (NUG).

The need for the teacher to manage the increasing volume of information available online.

Two of the part time teachers (PT1, PT2) interviewed raised the need for the teacher to control the information available online to students. One interviewee said:

“I use the Internet and am able to download and bookmark material and steer my students to use that material, instead of wasting hours and hours of their time trawling the net.” (PT1).

The other part time teacher also said that she would want to work with learning material on the college IT network before her students access it, so she could be sure that the content of the material *“was not contrary to what I was saying” (PT3)*. While neither identified this activity as a problem to them, in the context of the concerns about teachers’ time discussed above, the time to work through online learning materials before students use them is probably also a barrier to most teachers.

Copyright and intellectual property rights.

The users focus group (UG) and one interviewee (UI) referred to barriers related to the preparation of learning materials. The individual interviewee (UI) believes that there should be a team approach to the development of online learning materials, with a consistent high level of quality. The implication of this observation is that this is not the approach currently adopted or, if it is, the quality is not consistently to the required standard. The comments by the users group may provide the reasons for this.

“A I think its recognition [for online learning materials created] as well [which is restricting joint preparation] and people don’t like sharing.”

“B I think they don’t mind sharing but they worry that other people will be critical when they see it.” (UG).

Teachers’ role may diminish with online learning

One interviewee (SD2) reported on a conversation she had with a part time teacher, who

“sees online learning as a threat to her job, like it is going to take over her role. So there is still a barrier in getting over to part time staff what [online learning] is all about.” (SD2).

Barriers affecting students

Students need new skills.

Four individual interviewees (SD2, SD3, UI, PT4) and all three focus groups said that students need new skills to be able to learn effectively on line. One interviewee suggested that students *“lack confidence [in learning online]: the fear of technology”* (UI) while a part time teacher said *“not all mature students are comfortable using computers”* (PT4). On the same theme, the users focus group similarly said that adult students lack confidence in using computers. The non-users focus group believes that the students’ lack of skills in using computers is a barrier to online learning development, while the female focus group said:

“Many evening class students are of a generation where they are not computer-literate so accessing information online might be difficult for them.” (FG).

Students will need to change their learning style with online learning

The users focus group spent emphasised that students will need to change their expectations about how they will learn if they are to learn online successfully, saying that:

“I think sometimes [that students] think they get a raw deal. They think they have paid for a lecturer to stand in front of them for 36 weeks and I say to them go off and learn about this yourself. They think they have been cheated.” (UG).

“[Students] want a lecture. [They think] that is the effective way of learning. I think its from being at school and having a teacher stand at the front because often it’s the mature learners that have that kind of perception.” (UG).

A “I find it’s a hard job to make students think for themselves” B “Yes it’s like teaching them to learn isn’t it” A “That’s a big thing, teaching them to learn, especially adults” B “Very important [to teach students how to learn]. In fact that is probably one of the major issues [to the development of ILT] is getting a person to teach themselves how to learn.” (UG).

Barriers involving resources

Accommodation for online learning

Seven individual interviewees (DS1, SD3, SD4, SD5, UI, PT1, PT2) and all three focus groups considered that the current accommodation was a barrier to the development of online learning. For example, the non-users group said there were no computers in their classrooms. Examples of individual interviewees comments are:

"I can't use computers basically because I haven't got them. I teach in eight different classrooms. I have computers in only one room. What I really need is to have one classroom where I am based and computers either in that classroom or next door so I can use them." (SD1).

"A major issue, a barrier, is access to equipment because computers are not in every room. There are times when you plan a lesson [including use of computers] then you find yourself in a room without any computers!" (SD3).

"When you go into the IT section, you might get twenty two computers in a room, and there is probably twelve or sixteen students maximum. You think 'there are five computers, there are probably ten rooms, so probably fifty computers could be reallocated elsewhere.'" (SD3).

"We are encouraging staff to make full use of online learning, both in delivery and in preparation, but when they can't get their hands onto equipment that can supply them with this support they think of it as sort of pie in the sky." (SD5).

"[we can't use ILT because] we've got no computers in classrooms." (NUG).

A member of the female focus group also said:

"there is a lot of time when I would like to use computer technology I actually don't have the computer in the room. It would be very beneficial if every room had a computer in it even if it was a big screen so that at least you had one visual access." (FG).

Learning resources

Three interviewees (SD1, SD2, UI) and the users focus group commented on the difficulties with learning resources that are currently inhibiting the development of online learning. Poor quality of existing online materials is one concern, with one member of the users focus group saying:

“I have used a bought resource that was on a CD Rom on direct care that had an interactive Health and Safety quiz and it gave you a print out of your answers which was great, but standards have changed and I have never found an up-to-date one that matched it. They were always way behind.” (UG).

Similarly, the inappropriate format of existing software is a concern of one individual interviewee, who said:

“A lot of [online learning material] is the same as reading a textbook. It is not interactive enough, [which] is really what you need.” (SD2).

The reliability of the existing online learning hardware was also identified as a barrier to online learning development by three interviewees (SD1, SD4, SD5) and the users focus group:

“There is a mistrust of having technology which doesn't work when you want it to work. If you have a course that is very limited on time, then if anything goes wrong [with the technology] and you waste half a session, it throws out the rest of your scheme of work. You can't afford to waste half a session with technology that doesn't work.” (SD1).

There were also concerns that, even if hardware is available, it is perceived as of a low specification due to its low speed of operation.

“Certain [ILT] equipment is slow.” (SD5).

“In our staffroom, although we have got the machines, they are so slow.” (UFG).

There were also issues identified in the interviews arising from staff expectations of quality of ILT hardware/software, and the cost of upgrading them.

“when we looked at the Internet last year, we thought it was just wonderful to get onto it. Now, if you wait 5 or 10 seconds, it’s [perceived as] slow equipment, poor equipment, so I think people’s expectation with regard to the equipment has changed and not just the equipment itself.” (SD4).

“It is expensive to maintain the equipment that people demand now.” (SD4)

Barriers involving technical support

Three individual interviewees (SD1, SD5, UI, PT2) and the female focus group identified technical support as a barrier to the development of online learning in the college. An example of comments made is:

“[IT technicians] always seem under pressure. I’ve never found them anything other than helpful but you always feel sorry to be a nuisance.” (UI).

Summary of barriers to the development of online learning identified by interviewees.

The analysis of the interview data on teachers' perception of the barriers to the development of online learning in the college has, therefore, identified a number of barriers. These barriers are listed below, in order of priority. 'Priority' has been calculated from the number of references made to each barrier in the interviews shown in each parenthesis, with each member of a focus group counting as 'one', equal in 'value' to an individual interviewee.

1. Poor access to online learning hardware (14 references).
2. Insufficient time for staff to develop online learning (11 references).
3. Student confidence/competence in online learning/IT (8 references).
4. Unreliability/low specification of computer hardware (7 references).
5. Lack of staff skills/confidence (6 references).
6. Students unable to learn independently (5 references).
7. Poor quality of online learning software (4 references).

Data summary.

This section summarises the principal findings of the college research, initially considering the first research question, which asked if, in the college, teachers believe that the development of online learning would benefit the learning process. In considering this question, the college research found that the teachers believe that there are both beneficial and, potentially, detrimental effects which must be dealt with if students are to benefit from online learning.

However, of particular significance to this first question, a large majority of teachers (82% FT, 75% PT) do in fact believe that their student learning experience will improve if online learning is developed, with little disagreement. A small majority of teachers (56% FT, 61% PT) also believe that their effectiveness as teachers will increase, although the rest are unsure or do not believe their effectiveness will

increase. Furthermore, a significant majority of teachers (78% FT, 66% PT) would also want to develop online learning, even if not pressurised by senior management. This combined data is evidence that most college teachers do believe that online learning will improve student learning.

Most teachers (62% FT, 69% PT) believe that online learning does encourage students to become more active learners, 'seeking' instead of 'receiving' information, and that learning improves as a result of students taking more responsibility for their own learning (56% FT, 67% PT). However, the remaining teachers are either unsure or do not agree that such 'beneficial' effects will result. The uncertainty about whether online learning improves learning could result from the concern of a large majority of teachers (80%) who believe that inexperienced or weak learners will be unable to take the responsibility for their own learning which is required with online learning. Furthermore, while a small majority of teachers (54% FT, 53% PT) do believe that the students in the college would be able to cope with the increased information available online, the rest are either unsure or disagree. Many college teachers (32% FT and 33% PT) consider that many of their students would be uncomfortable with taking more responsibility for their own learning, with a further 30% FT and 17% PT also unsure. Moreover, the great majority of teachers (80% FT, 78% PT) do not yet believe that online learning improves student achievement, while few teachers (24% FT, 34% PT) currently believe that online learning improves student motivation.

The majority (64% FT, 61% PT) of teachers do not believe that their contact with students will reduce as a result of adopting online learning. Many (54% FT, 43% PT) teachers believe their workload will increase. There is, however, much uncertainty (38% FT, 31% PT) about whether students will need more support from their teachers when working on line. If students do need more support, there will be an increased, not a diminished, role for the teacher. Most (82% FT, 75% PT) teachers believe, however, that they will be able to spend more time supporting students who need it when other students are working independently online. Most (80% FT, 89% PT)

teachers also believe that online learning will only improve learning if used in addition to, and not instead of, traditional learning methods.

Most (88% FT, 97% PT) teachers also believe that online learning enables learning to occur at a time, place and pace convenient to the learner. Many (76% FT, 58% PT) teachers believe that communications will improve with online learning, although the higher level of uncertainty (28%) by part time teachers may well reflect concerns about their own level of access to the college online learning infrastructure. Most (86% FT, 94% PT) teachers also believe that online learning tasks will be able to be repeated as often as required, thereby improving learning. Most (84% FT, 83% PT) teachers believe that online learning will increase the availability of interesting information relevant to student learning, with little disagreement. However many teachers, particularly part time, (32% FT, 53% PT) are less certain that the increased amount of useful information will be used effectively, as the emphasis may become the gathering of information rather than its effective use. There is also uncertainty about whether students will waste their time searching for inappropriate materials and activities when learning online, with 66% FT and 67% PT believing they will or are unsure. Most teachers (76% FT and 58% PT) believe that communications will improve with online learning. While most teachers (66% FT, 80% PT) believe that online learning will be able to increase individual learning opportunities, thereby improving learning, a significant number (26%) of full time teachers are unsure. There is also much uncertainty from teachers (35% FT, 28% PT) about whether online learning will increase opportunities for learners to adopt their most appropriate learning style. There is similarly some uncertainty (26% FT, 22% PT) about whether online learning will be able to diagnose the individual learning needs of a student.

I further analysed the data to establish which of the benefits of online learning identified in the literature do the FE teachers in the college studied support, and what is the level of that support. The benefits of online learning supported by the FE teachers are listed below, ranked according to the level of support.

1. Online learning enables learning to occur at a time, place and pace convenient to the learner (88%FT, 97% PT agree).
2. Online learning enables learning tasks to be repeated as often as required, until the student acquires the intended knowledge and understanding (86%FT, 94%PT agree).
3. Online learning will increase the availability of information that is interesting and relevant to student learning (84%FT, 83%PT agree).
4. When other students are learning independently with online learning, the teacher will be able to provide more personal support to those students who need it (82% FT, 75% PT agree).
5. Online learning improves learning, but only if used in addition to effective traditional learning methods. (80% FT, 88%PT agree).
6. Online learning, through e-mail and bulletin boards, will improve opportunities for students to communicate with each other and with lecturers (76% FT, 58% PT agree).
7. Online learning improves learning by increasing individual learning opportunities (66% FT, 80PT agree).
8. Online learning encourages students to become more active learners, 'seeking' instead of 'receiving information (62% FT, 69% PT agree).
9. Online learning improves the learning process by enabling students to take more responsibility for their own learning (56% FT, 67% PT agree).

The following 'benefits' were less well supported, as less than 50% of the FT and PT teachers agree with the 'benefit'

10. Online learning improves levels of student achievement (40% FT, 53% PT agree).
11. Online learning improves student motivation. (42% FT, 46% PT agree).
12. Online learning will be able to diagnose the individual learning needs of a student (30% FT, 25% PT agree).

I also analysed the data to establish which of the detrimental effects of online learning identified in the literature do the FE teachers in the college studied support, and what is the level of that support. The percentage of the 'agree' responses is used to 'rank' the 'relevance' of each detrimental effect.

1. An inexperienced or weak learner may be unable to take the responsibility for his/her own learning expected with online learning (80% FT, 80% PT agree).
2. The development of online learning will increase teachers' workload (54% FT, 43% PT agree).
3. Online learning results in too much flexibility, which will disadvantage a novice or unsophisticated learner (52% FT, 42% PT agree).
4. With online learning, students will waste their time searching for inappropriate materials and activities (36% FT, 36% PT agree).
5. Online learning means that students will need more tutor support (34% FT, 36% PT agree).
6. Online learning restricts opportunities for individual students to adopt the learning style most appropriate for them (33% FT, 30% PT agree).
7. Online learning will result in students becoming isolated and unsupported (32% FT, 31% PT agree).
8. Students will not be able to cope with the increased information available through online learning (24% FT, 25% PT agree).
9. Effective teaching/learning will suffer, as online learning is only concerned with gathering information and not its effective use (18% FT, 31% PT agree).
10. With online learning the teachers' contact with students will reduce (16% FT, 22% PT agree).

The data analysis also identified the main barriers that the FE teachers in the college believe are inhibiting the development of online learning in the college. All of the barriers identified in the literature were found to be relevant, to a greater or lesser degree. The percentage of the 'agree' responses is used to 'rank' the 'relevance' of each barrier. The number of 'unsure' responses is also shown for information. In view of the number of comments about the lack of time for teachers to develop online

learning from both the interviews and the questionnaire responses, this barrier has been placed first in the prioritised list of relevant barriers. Those barriers marked with an asterisk were also identified as barriers by the interviewees.

1. There is inadequate time for teachers to develop online learning*.
2. Students need new skills to be able to convert information from online learning sources into relevant knowledge and understanding (70% FT, 80% PT agree; 16%FT, 14% PT unsure)*.
 - Teachers will need to be the 'gatekeeper' for the students to ensure that the information they acquire online is relevant to their learning (78% FT and PT agree; 16%FT, 8% PT unsure).
3. There is currently a lack of suitable software to support learning (68% FT, 69%PT agree; 14%FT, 28% PT unsure)*.
4. Students expect teachers to personally provide them with the information they need to achieve their qualifications (62% FT, 67% PT agree; 12%FT, 22% PT unsure)*.
5. Students currently cannot access a college computer whenever they need to (68% FT, 42% PT agree: 8% FT, 22% PT unsure)*.
 - Learning would improve if classroom, computer, text-book, group and individual learning opportunities were gathered together in curriculum-focused centres (68% FT, 78% PT agree; 26%FT, 11% PT unsure).
6. There is inadequate technical provision to support any development of online learning (57%FT, 44%PT agree; 15%FT, 42% PT unsure).
7. The college network is not sufficiently reliable to support any development of online learning (44% FT, 31% PT agree; 22%FT, 61% PT unsure)*.
8. Online learning requires students to be more active learners. Students will be uncomfortable with this (32%FT, 33% PT agree; 30%FT, 17% PT unsure).
9. Teachers do not have the skills to confidently use online learning in curriculum delivery (32% FT, 30% PT agree; 18%FT, 11% PT unsure)*.

- Staff development should focus on helping teachers to use online learning to teach their own subject (94% FT, 86% PT agree; 4%FT, 11% PT unsure).
 - Teachers do not know how to design, develop and use online learning (22% FT, 49% PT agree; 10%FT, 11% PT unsure).
 - Teachers do not know how to help students to acquire the skills to enable them to convert information from online sources into relevant knowledge and understanding (26% FT, 17% PT agree; 19%FT, 25% PT unsure).
 - Teachers have little or no experience in the practical application of online learning (22% FT, 31% PT agree; 14%FT, 11% PT unsure).
 - Teachers are unable to access and retrieve relevant subject-focused information through the Internet and college network (12% FT, 22% PT agree; 22%FT, 17% PT unsure).
10. Teachers prefer to create their own learning materials, even if there are good quality learning materials available prepared by others (20% FT, 17% PT agree; 26%FT, 28% PT unsure).
 11. Students do not know how to access the Internet and college network (16% FT, 17% PT agree; 26%FT, 22% PT unsure).
 12. Teachers are unwilling to place their learning materials onto the college network (10% FT, 17% PT agree; 12%FT, 28% PT unsure).
 13. Teachers will only use online learning if it enables them to teach in the same way (6% FT, 11% PT agree; 22%FT, 25% PT unsure).

Finally, while I have made a number of references in this research report to my role as college principal, I do not believe that this role has affected the validity of the data to any significant extent. However, when considering the validity of the research, it is important to remember that the research data on teachers' perceptions about online learning reflects their perceptions during the period of the research. As teachers' use of online learning in the college increases, and action is taken in the college to remove the barriers that are currently inhibiting the development of online learning, similar research in the future would probably reveal different teachers' perceptions.

Furthermore, due to time restraints and with the focus on the perception of teachers, the research did not seek to identify any barriers to the use of online learning experienced by particular groups classified in terms of gender, age, cultural or socio-economic background. Should this have been the focus of the research, and the literature review, a different set of barriers may have been identified.

CHAPTER FIVE: RESEARCH CONCLUSIONS

Chapter five will:

1. summarise the conclusions reached from the evidence relating to the two research questions;
2. discuss the implications for the college of the research outcomes;
3. discuss the limitations of the research, its relevance to the further education sector and identify opportunities for further research;
4. summarise my personal reflections on the research process.

1. Research conclusions.

The data obtained was based on two key questions. The first one was: “ In the FE college studied, do the teaching staff believe that the development of online learning would improve the teaching and learning process”. The second question was: “What are the main barriers that teachers believe currently impede the development of online learning in the FE college studied.”

Principal conclusions.

My research concludes that 82% of full time and fractional, and 75% of part time, teachers in the college studied believe that the development of online learning would improve the teaching and learning process in the college and are therefore supportive of its continuing development. As a further 14% of all teachers in the college are unsure if teaching and learning would improve, there are therefore few teachers in the college who believe that online learning is not beneficial to the teaching and learning process. In the context of the under-developed use of online learning nationally in schools and further education colleges, including the college studied, and the finding from earlier research that the teaching staff in another further education college had serious concerns about the appropriateness of adopting online learning (Browne, 2000b), this is a very important conclusion. My research also concludes that, in the college studied, the under-developed use of online learning is not due to a lack of

support for the development of online learning, but reflects the existence of a number of barriers to its use that need to be removed if online learning is to be successfully developed in the college. However, these important conclusions are subject to the equally important caveat that, while many benefits to learning are identified in my research, a number of effects that could detrimentally impact on learning were also revealed. Therefore, online learning raises a number of issues that makes it premature to embrace it uncritically. The successful development of online learning in the college therefore depends on the careful management of these issues.

Rationale for the conclusions.

Research question 1: In the FE college studied, do the teaching staff believe that the development of online learning would improve the teaching and learning process?

The first part of my research focused on the beneficial and detrimental effects of online learning development identified in the literature, seeking, through a questionnaire, the views of the college teaching staff on each of these effects. The outcomes are now summarized.

According to information from the literature review, online learning could support a transition from teacher-centred control of learning towards a situation in which students become more responsible for their own learning activities. (Barker, 1999; Fayter, 1998; Learning and Skills Council, 2002; Schlais and Davis, 2001; Somekh and Davies, 1991) As result, students would take more responsibility for their own learning, using learning materials instead of over-relying on teacher input. There is, however, an alternative view that, as online learning requires students to take more responsibility for their learning, its development is detrimental to the learning process as it results in less structure to learning, disadvantaging the novice or unsophisticated learner (Leathwood, 1999; Sinclair, 1998). From my research, most of the teachers (62% full time/fractional and 69% part time) in the college studied believe that online learning does encourage students to become more active learners, ‘seeking’ instead of ‘receiving’ information and that learning improves as a result of students taking more

responsibility for their own learning. However, it is also clear that a large majority of teachers (80%) in the college also believe that inexperienced or weak learners will be unable to take the responsibility for their own learning required of online learning. Furthermore, my research also shows that many of the teachers (32% full time/fractional and 33% part time) in the college believe their students will be uncomfortable with the need to become more active learners, while many others (30% full time/fractional and 17% part time) are unsure, suggesting that, for many students, online learning would be problematic without appropriate tutorial support. This is an important conclusion. My research therefore strongly supports the literature evidence that learning online will only improve teaching and learning if teachers recognise that each student needs different amounts of support and independence (Calder, 2000; Kirkup and Jones, 1996; Malinnen, 2001; Phipps and Merisotis, 1999; Tait, 2000). Online learning is therefore merely another medium for teachers to deliver teaching and learning where, for example, a teacher might choose an appropriate teaching/learning strategy for a particular learning task and situation, and might then look for ways that online learning might enhance that method (Stephenson, 2001). This is an important conclusion, which emphasises the need for careful planning when introducing online learning, which goes well beyond merely improving access to computers.

Arguably, the most significant benefit arising from the development of online learning is that it improves student achievement. However, I did not find any literature evidence on further and higher education that online learning has any effect on student achievement. The literature on student achievement for primary and secondary is restricted to that produced in three reports for BECTA (2001a; 2001b; 2001c), the findings of which indicate that, in most cases, the measured improvements in attainment are too slight to be of statistical significance. There is only limited literature evidence that online learning can improve student motivation (Ali and Franklin, 2001; Taylor Nelson Sofres-Social, 2001). My research found that the great majority of teachers, 80% full time/fractional and 78% part time, either do not believe that online learning improves student achievement, or are unsure. The data on the online learning effect on student motivation paints a similar picture, with a large

number of teachers, 76% full time/fractional and 66% part time, either believing that online learning does not improve student motivation or unsure if it does or not. This level of uncertainty about the effects of online learning on achievement and motivation, possibly reflects the inexperience of many teachers of using online learning, and hence their experience of its effects. Overall, therefore, there is insufficient research evidence to yet establish whether online learning improves student motivation or achievement. I was very surprised to find so little evidence about the effects of online learning on such an important aspect of education, which causes me to question the appropriateness of the government's unequivocal support for the development of online learning without clear evidence that it does improve student achievement. There is clearly a need for much more research on this issue.

There is some literature evidence that a move to online learning and the increased responsibility for students to manage their own learning that will result may have the negative effect of diminishing the role of the teacher (Ali and Franklin, 2001; Further Education Funding Council, 1996; Kirkup and Jones, 1996; O'Banion, 1997). There is, however, other evidence that the role may change but not diminish, such as evidence that students will in fact need more tutorial support when learning online (Canning, 2002). Moreover, according to information in the literature, many lecturers complain that their excessive teaching load means that they are unable to properly undertake many important tasks related to successful student learning, such as teamwork, curriculum and learning materials development, improving employer liaison, review and evaluation. The availability of new technology to support learning could create more time to carry out these important tasks (Lewis, 1999). My research indicates that the majority of teachers, 64% full time/fractional and 61% part time, in the college studied do not believe that their contact with students will diminish, with few teachers (14% of full time and fractional, and 28% of part time) believing that their workload will not increase as a result of online learning development. The large majority of college teachers (82% full time/fractional and 75% part time), in fact, believe that they will be able to spend more time supporting students who need it when other students are working independently online. My research also reveals that a large majority (80% full time/fractional, and 89% part time) of teachers believe that

online learning will only improve learning if used in addition to, and not instead of, traditional learning methods. The college teachers therefore believe that online learning will be an additional learning opportunity for students, operating alongside many others used by the teacher, with no detrimental effect on the need for the teacher, albeit that the role may change, but not diminish. The literature evidence is not therefore supported on this issue.

One reason why online learning might be attractive to teachers is that it enables learning to take place at a time, place and pace convenient for the learner, enabling students to take more responsibility for their own learning. This would also enable the learner to have a high level of control over information, having the capacity to replay on demand, to re-administer tests and to vary the way in which content is presented (Beernaerts, 2001; HEFCE, 1998; Lewis, 1999; The National Grid for Learning, 2002; O'Banion, 1997). My research found that a very large majority of teachers (88% of full time/fractional, and 97% of part time) believe that online learning enables learning to occur at a time, place and pace convenient to the learner, which is beneficial to student learning. Similarly, a very large majority of teachers (86% full time/fractional, and 94% part time) agree that online learning benefits learning by enabling learning tasks to be repeated as often as required until the student acquires the intended knowledge and understanding. The level of support in the college studied for these benefits of online learning probably provides the reasons why the majority of teachers (82% of full time/fractional, and 75% of part time) support the development of online learning, with 14% of teachers unsure.

A further reason why most teachers are supportive of online learning development may be that Internet communication tools, such as e-mail, electronic bulletin boards, conferencing, chat rooms can facilitate student group work and student/tutor contact that will make learning more active (Alexander and Boud, 2001; Doring, 1999; Fayter, 1998; Hase and Ellis, 2001; Lewis *et al*, 1997; Mallinen, 2001; Mayes, 2001; Schlais and Davis, 2001; Whitlock 2001). One caveat, however, is the potential for an overload of social or irrelevant messages, with issues about the amount of time needed to read messages, and too much demand for interaction with other students

(Mason, 2001). My research found that a large majority of full time/fractional (76%), and a small majority (58%) of part time, teachers believe that communications will improve with online learning. The high level of uncertainty for part time teachers about whether communication would improve may reflect concerns about their own level of access to the college online learning infrastructure that, as they are in college less, might mean that they are unsure how easily students will be able to communicate with them online.

There is evidence from the literature that new technology information systems have also changed the information process, significantly increasing the amount of relevant information available to support learning, with access to global information and expertise easily available on demand. Electronic databases, including the Internet, allow learners to explore previously inaccessible material, search world-class libraries and bring a wide array of information into their learning arenas and research (Ali and Franklin, 2001; Doring, 1999; Further Education Funding Council, 1996; Marchionini, 1999; Whitlock, 2001). However, the importance of learners knowing exactly how they will use the information they are seeking to increase their chances of purposeful searching is also emphasised in the literature. This leads to an alternative view that the development of online learning will diminish learning, as the focus will become the gathering of information rather than its effective use (Doring, 1999; Gorard and Selwyn, 1999; Sinclair, 1998). There is a risk, therefore, that the increasing use of the Internet as an alternative source of information and a means of distributing knowledge will continue without considering its effect on the learning process or the isolated learner. In addition, online learning often merely replicates the existing system, treating learning as knowledge transfer, with old text merely transferred onto a web page, much of which is boring (Alexander and Boud, 2001; Schank, 2001; Stephenson, 2001). A further concern is that students will waste their time searching for inappropriate activities and material and a significant danger of non-peer reviewed information taken as fact (Ali and Franklin, 2001; Dickinson and Stewart, 2001; Mudge, 1999). Furthermore, as IT becomes increasingly sophisticated, students will have little incentive to develop basic numeracy and literacy skills and, as a consequence, are being deskilled (Cohen, 1993). My research reveals that a large

majority of teachers (84% full time/fractional and 83% part time) do believe that online learning will increase the availability of interesting information relevant to student learning. However, the college research also indicates that the teachers are less certain that the increased amount of useful information will be used effectively, with 32% of full time/fractional and 53% of part time teachers unsure or believing it will be used ineffectively. There is also much uncertainty among the college teachers about whether students will waste their time searching for inappropriate materials and activities when learning online, with around a third believing they will, a further third believing they will not and the other third unsure! Clearly, effectively managing the increased information available online is an important issue if online learning is to be effective.

Some literature also identifies the availability of a choice of learning styles to meet the needs of learners as a positive feature of online learning (Davison *et al*, 1999; Fayter, 1998; HEFCE, 1999a; National Grid for Learning, 2001; Stephenson, 2001). However, there is also contrasting literature evidence that this positive development is diminished by the fact that teachers tend to adopt their own preferred learning style in developing students' learning material, which disadvantages those students whose preferred learning style is different to that of the teacher (Davison *et al*, 1999). Moreover, there is literature evidence that courseware content is not always well matched to the ability of the student (Further Education Funding Council, 2000; Learning and Skills Council, 2002; Rosenberg and Lecuyer, 2001). In my research, a large majority (80%) of part time and a majority (66%) of full time/fractional teachers believe that online learning will be able to increase individual learning opportunities, thereby improving learning. College teachers are less certain about whether online learning will increase opportunities for learners to adopt their most appropriate learning style, with similar numbers of full and part time teachers believing it does, does not, or are unsure. There is a similar level of teachers' uncertainty about whether online learning will be able to diagnose the individual learning needs of a student.

In concluding this summary of the data relating to the college teachers' perceptions of online learning, my research significantly concludes that a large majority of teachers (82% of full time and fractional and 75% of part time) believe that their student

learning experience will improve if online learning is developed. A small majority of teachers (56% of full time/fractional, and 61% part time) also believe that their effectiveness as teachers will increase. This combined data is evidence that most of the college teachers do believe that online learning could improve student learning. Furthermore, the fact that a significant majority of teachers (78% of full time/fractional, and 66% of part time) would want to develop online learning, even if not pressurised by senior management, is additional evidence of the belief of the college teachers that online learning development could improve student learning.

Research question 2: What are the main barriers that teachers believe currently impede the development of online learning in the FE college studied?

The literature identified a number of barriers that, unless removed, could impede the development of online learning. My research, through a questionnaire and a series of individual and group interviews, sought the views of the college teaching staff on these barriers, initially considering barriers related to teachers that will need attention if online learning is to be successfully developed.

My research therefore considered the need for teachers to change how learning is delivered if online learning is to be successful. The literature evidence is that the selection, processing and adaptation of materials by the learner will become a more significant part of the learning process, with the role of the teacher in selecting, processing and packaging of material diminishing (Fayter, 1998; Hase and Ellis, 2001; Lewis, 1999; Mallinen, 2001; Mason, 2001; Pye Tait, 2000; Sheffield Hallam University and the Learning and Skills Development Agency, 2002; Stephenson 2001). Information from the literature review suggests that teachers should retain responsibility for effective class management and a controlled environment, even when students are learning online. The teacher would also have to retain high expectations of student achievement, and a strong commitment to academic goals. Clear goal setting, structuring the curriculum content, clarity of presentation, frequent questioning, provision of evaluation and feedback would remain essential aspects of the teacher's role, even when learning is online. The role would not therefore be

relegated to merely supporting online learning, but will involve helping learners maximise their understanding of, and improved learning from, the increased information that is now available. The teacher would, however, become more flexible as classroom activity become more diverse and less planned, with a movement to less didactic and more open styles of teaching (Fisher, 1993; Mallinen, 2001; Noss and Pachler, 1999; Schlais and Davis, 2001). The changed role of teachers following any development of online learning would require them to help students to learn effectively online. In particular, students using the Internet for learning would need to learn how to acquire information online, and also how to turn that information into knowledge. As there is now so much information available electronically, teaching learners to assess and select from data, to be able to sift opinion and facts and the useful and the irrelevant, not just to gather information, is a key new skill (Doring, 1999; Marchionini, 1999). It is, however, also possible that students could suffer from information overload due to the amount of information available on the Internet, to the detriment of their learning. As part of their changed role, teachers would therefore need to be the gatekeepers of the quality and relevance of online learning information to maximise effective learning. (Ali and Franklin, 2001; Mallinen, 2001; Noss and Pachler, 1999; Sinclair, 1998). My research found that a large majority (78%) of teachers agreed that they would need to act as 'gatekeepers' to ensure that the information students acquire online is relevant to their learning. This finding suggests that teachers agree there will be a significant change in their role, as they currently have little need to monitor student information acquired online. However, many teachers (45% of full time/fractional and 42% of part time) are not confident that they yet have the skills to be able to help students to convert information obtained online into relevant knowledge and understanding.

According to the literature review information, it is also primarily the lack of teachers' IT skills in all education sectors that is affecting the potential of online learning to benefit student learning. Teachers are not undertaking personal development in online learning at the level planned or anticipated, nor are they currently using online learning in the classroom to the level expected by the government and other organisations funding the development of online learning

(Learning and Skills, Council 2002; OFSTED, 2001; Powell and Davies, 2001; Pye Tait, 2001; Sheffield Hallam University and the Learning and Skills Development Agency, 2002; University of Nottingham *et al*, 2001). However, providing staff development opportunities is not in itself sufficient to bring about significant change in the use of online learning. Teachers need to have sufficient time to become familiar with the technology, and the failure of teachers to acquire IT skills has been due to a lack of time to undertake the required staff development (HEFCE, 1999a; HEFCE, 1999b; Maddin, 1997; National Further Education Research, 2001; OFSTED, 2001; Pelgrum and Plomp, 1993; Swaney, 2001; University of Nottingham *et al*, 2001). Furthermore, online learning takes more time than traditional classroom teaching (Mallinen, 2001; Mason, 2001). My research indicates that many teachers, (36% full time/fractional and 42% part time) in the college may lack the necessary IT skills to be able to successfully support the delivery of online learning.

The research questionnaire did not directly ask the college teachers if lack of time was a barrier to their development of online learning, assuming it would result in a 100% positive response. Instead, in order to judge the level of teachers' concern about the lack of time as a barrier, an open question was included which asked respondents if there were any other barriers not mentioned in the questionnaire. The only other barrier, identified by many questionnaire respondents, was a lack of time to develop online learning. Furthermore, the lack of teacher time was the second most relevant barrier to the development of online learning identified by the teachers who were interviewed in the college research, confirming that a significant reason for the current low use of online learning in the college is the lack of time for staff to develop their expertise and confidence in its use. This is a significant, albeit unsurprising, conclusion.

Information from the literature review also suggests that, unless the curriculum specifies a commitment to online learning by embedding it throughout subject areas, it will be regarded as an 'add-on' by students, who are then unlikely to regard online learning as a relevant part of the curriculum (HEFCE, 1999b; Selwyn *et al*, 2000; Sheffield Hallam University and the Learning and Skills Development Agency,

2002). Furthermore, teachers' training programmes lacking a subject-specific focus are less effective in raising teachers' confidence to use online learning (Bonk *et al*, 2001; HEFCE, 1998; OFSTED, 2001). My research indicates that such integration is not yet possible for many teachers (50% of full time/fractional and 41% of part time) in the college who do not yet believe that they have the skills to use online learning to teach their own subject. A very large majority of the college teachers (94% full time/fractional and 86% of part time) believe that staff development should therefore focus on helping teachers to teach their own subject.

It is argued in the literature that teachers' concepts of teaching and learning will also significantly effect any decision they make about using online learning. Accordingly, teachers adapt the use of computers to their existing teaching routines, but if this required the teachers to deviate too much from those routines, they did not to use them (Somekh and Davies, 1991; Van den Akker *et al*, 1992; Veen, 1993a). The value that students place on online learning is dependent on how well the experience is presented by the teacher, and the quality of that presentation will depend on the conceptions of the teacher about teaching and learning, rather than the features of the technology itself. Such conceptions pre-exist, so teachers whose concept of learning is, for example, didactic are much less likely to embrace online learning. As a consequence, online learning is most effective where teachers are predisposed to always carefully consider the situated needs of learners, regardless of the technology (Jackson and Anagnostopoulou, 2001). The data from my research indicates that a sizeable majority of teachers (72% of full time/fractional and 64% of part time) are willing to change the way they teach when they use online learning, with very few (6% full time/fractional and 11% part time) saying they would not change their current teaching style. However, as around a quarter of teachers are unsure if they would or not, their conceptions of teaching and learning may be a barrier to the development of online learning for them and their students. This finding is consistent with the support for online learning development found in the research, with 78% of full time/fractional and 66% of part time teachers stating they would want to develop online learning, even if not pushed to do so by college management. This finding

further leads me to believe that my role as principal did not influence these teachers' opinions.

According to the information from the literature review, teachers prefer to create or collect together their own materials, suggesting a need for teachers to be able to appropriate and adapt online learning materials to their local conditions (Learning and Skills Development Agency, 2001). Some teachers are also concerned about copyright and intellectual property rights where teacher-developed materials are placed on the Internet and potentially publicly accessible. This might inhibit teachers from agreeing to place their materials on the Internet, thereby inhibiting its development as a learning resource (Fayter, 1998; Galbraith, 2000). My research indicates, however, that a large majority of full time teachers (78%) in the college are willing to place their material onto the college network, suggesting they are unconcerned about others having access to 'their' material. However, only a relatively small majority of part time teachers (55%) are willing to place their material onto the network. This reticence probably reflects the relative insecurity of their employment and their concern that their services might not be needed if the college has access to their material. The college research data also indicates that, while around half of the teachers (54% full time/fractional and 55% part time), would use good quality learning materials prepared by others, the rest either prefer to create their own materials, or are unsure if they would or not. This suggests that it is preferable for any online learning materials purchased or developed being capable of being 'customised' by the teacher, otherwise teachers might not use them and continue to develop their own materials, which could be a barrier to the development of online learning.

A number of barriers were also identified in the literature related to students that will need attention if online learning is to be successfully developed. According to literature review information, the experience of many students is one where they learn passively in a traditional classroom or lecture theatre, and they therefore need to change the emphasis of some of their learning to acquiring learning skills if they are to learn successfully online (Akerlind and Trevitta, 1999; Mason, 2001; Moro, 1997;

Noss and Pachler, 1999). The change is likely to be problematic where it conflicts with students' past educational experiences and current conceptions of learning (Akerlind and Trevitta, 1999). Teachers and lecturers must, therefore, manage this conflict by recognising the new demands that self-directed learning places on learners, and working with them in managing the transition process (Akerlind and Trevitta, 1999). My research data on this issue confirms that teaching staff have concerns about the ability of many students to accept the responsibility of managing parts of their own learning, with the majority of college teachers (62% of full time/fractional and 67% of part time) believing that their students currently expect teachers to personally provide them with the information they need to achieve their qualifications. This finding indicates that students taking more responsibility would involve, for many students, a significant change in how they learn. Furthermore, the research data from the college indicates that many teachers (62% full time/fractional and 50% part time) in the college are uncertain if their students are able to become more active learners. The interviews also identified concerns about the ability of students to work independently as a principal barrier to the development of online learning.

Information from the literature review suggests that the lack of learner IT skills is a problem affecting the successful development of online learning. Students need to be IT literate so they have the skills to use hardware, software and access the Internet. While many students may already have such skills, some, particularly older, students will have to be taught those skills (Kirkup and Jones, 1996; HEFCE, 1999a; Learning and Skills Council, 2002). Students also need skills to locate, select, assess information online, and successfully convert this information into knowledge and understanding. Knowing how to access the Internet and where the most relevant information is stored and how to access library databases are considered essential skills for successful online learning (Doring, 1999; Hase and Ellis, 2001; Kirkup and Jones, 1996; Lewis, 1999; Noss and Pachler, 1999; Schlais and Davis, 2001; Wilson *et al*, 1998). My research concluded that many teachers (42% full time/fractional and 39% part time) in the college believe their students do not know how to access the Internet and college network, or are unsure if they do or not. Similarly, a large majority of teachers (70% full time/fractional and 80% part time) believe that their

students need to develop new skills to convert online information into relevant knowledge and understanding. The interviews also identified concerns about students' competence and competence in IT to be a principal barrier to the development of online learning in the college.

In addition to barriers related to teachers and students, there are also 'resourcing' barriers to the development of online learning in the college. According to information from the literature review, if online learning is to be successfully developed, the whole learning environment needs to be the focus of attention, not just the technology used within it (Lewis, 1999). However, only 20% of computers in the FE sector are open-access, with a large number of machines locked behind classroom doors when students want to use them, as a result of which FE teachers and students are being denied access to a computer when needed (Powell and Davies, 2001; Sheffield Hallam University and the Learning and Skills Development Agency, 2002). There is, therefore, a need to provide more open access to computers through the establishment of open plan areas (Powell and Davies, 2001). However, a trend in the establishment of specialist curriculum based learning-centres is beginning to emerge, involving the physical gathering together of similar curriculum materials including computer-based content (National Grid for Learning, 2002; Powell and Davies, 2001). The research in the college reveals that most teachers (68% full time/fractional and 42% part time) believe that their students do not currently have easy access to computers in the college. Most teachers (68% full time/fractional and 78% part time) in the college also believe that learning would therefore improve if different learning opportunities, including online learning, were gathered together in curriculum-focused centres. The interviews also identified poor access to computers as the main barrier that is currently impeding the development of online learning in the college.

The literature review information suggests that the lack of suitable online learning materials is a significant reason why the use online learning is currently underdeveloped (BECTA, 1999; Learning and Skills Development Agency, 2001; National Grid for Learning, 2001; Pollock and Squire, 2001; Powell and Davies, 2001; Rosenberg and Lecuyer, 2001). The cost of developing learning resources is

also an inhibitor to the development of online learning (BECTA, 1999; HEFCE, 1998; Sheffield Hallam University and the Learning and Skills Development Agency, 2002). My research reveals that most teachers (68% full time/fractional and 69% part time) in the college also believe there is currently a lack of suitable software to support learning, which is evidence that a lack of learning resources is a further 'resources' barrier to the development of online learning in the college.

Information from the literature review also suggests that IT systems are expected to be reliable, with rapid maintenance when things go wrong, while IT environments will require intensive management and technical support if they are to operate efficiently. It is important to have reliable technician support continuously available to help staff and students resolve problems as they arise (Buck, 1997; Calder, 2000; Galbraith, 2000; Hase and Ellis, 2001; Lewis *et al*, 1997; National Grid for Learning Report, 2002; Sheffield Hallam University and the Learning and Skills Development Agency, 2002; Ward *et al*, 1998). From my research, many teachers (57% full time/fractional and 44% of part time) do not believe there is currently adequate technical provision in the college to support online learning development.

Furthermore, many teachers (44% full time/fractional and 31% part time) do not believe that the network is sufficiently reliable to support the development of online learning. The interviews identified the poor quality of online learning software and the unreliability of computer hardware in the college as principal barriers that are currently impeding the development of online learning in the college.

Finally, information from the literature review suggests that online learning will never be successful without strong senior management support in a education/training organisation committed to learning online and has an organisation wide strategy to successfully develop online learning (BECTA, 2001; Helm, 1997; HEFCE, 1998; HEFCE, 1999b; National Grid for Learning, 2002; Rosenberg and Lecuyer, 2001; Sheffield Hallam University and the Learning and Skills Development Agency, 2002; Swaney, 2001; University of Nottingham *et al*, 2001). However, the successful development of online learning is problematic where change is implemented by management without prior consultation and without the support of the teachers who

are to manage the online learning. (Browne, 2000a; 2000b). In the college studied, while many teachers (47% full time/fractional and 32% part time) do not believe that managers are developing online learning to save money, many others (37% full time/fractional and 47% part time) are unsure if the motive for management to develop online learning is merely to reduce costs. However, as the college data also reveals, most teachers (78% full time/fractional and 66% part time) would still develop online learning, even if not pushed by management to do so. Therefore, any suspicion of managers' motives is unlikely to prevent teachers from developing online learning in the college studied. This is further strong evidence of the college teachers' support for online learning development.

2. Implications of the research for the college studied.

The college research has concluded that most of the teachers (82% full time/fractional and 75% part time) believe that the development of online learning could benefit teaching and learning in the college studied. However, they also identified a number of barriers that are currently impeding their use of online learning that, by implication, are affecting the quality of teaching and learning in the college. It is therefore incumbent on the college to remove as many of these barriers as possible. I am the principal of the college studied and, in a context where the teachers wish to develop online learning, in a position to promote changes in the approach to online learning development with a view to removing the barriers. Teaching staff will be fully involved in the change to ensure that ownership of any new arrangements, thereby avoiding the teachers' resistance to management-driven change discussed by Browne (2000b). Therefore, unless otherwise indicated, the actions/changes are only indicative of changes that might emerge from that consultation process. As the research was concerned with identifying the 'main barriers', the actions suggested only refer to the ten most relevant barriers identified in the research. Each of the barriers is considered in priority order of relevance from the college research.

In the light of the importance attached by the teachers interviewed in the research, and the number of unsolicited references in the questionnaire, the lack of teacher time has

been identified as the main barrier. The basis of the ordering of the other barriers is indicated against each, with an asterisk * showing that the barrier was also identified by the interviewees.

Barrier 1: Teachers currently have insufficient time to develop online learning.*

It is not possible to say what is “sufficient time” to enable teachers to develop online learning. However, in response to the research the college has reduced the annual contact time of teachers by 46 hours that, with the related preparation time, equates to around 64 hours/year. The teachers, when advised of this reduction, were informed that the change in hours was to give them more time to develop online learning. In addition, three annual staff development days, where all teaching is suspended, have been introduced. The focus of these days will be online learning staff development. The adequacy of this additional staff development time will be monitored and reviewed if necessary. However, further consideration is needed on how to address this issue for part time teachers.

Barrier 2: Students need new skills to be able to convert information from online learning sources into relevant knowledge and understanding (70% FT, 80% PT teachers agree; 16% FT, 14% PT unsure).*

The research has indicated that students will need a range of new skills if they are to learn successfully online. Many students may not be able to access the college network and Internet, according to 42% of full time/fractional and 39% of part time teachers. The process for inducting existing college students to ‘IT in the college’ will be reviewed in the light of the research data, and any revised induction programme will include activities to address the ‘student skills’ issues identified in the research. Such a programme will be fully operational for the beginning of the 2004/05 academic year. However, to ensure that students are supported in acquiring these new skills, teachers will need to be the ‘gatekeepers’ for the students to ensure that the information they acquire online is relevant to their learning. To act as ‘gatekeepers’, teachers will need to be able to advise students where to find relevant subject-focused

information from the Internet and other online sources. Teachers will therefore need to know and understand each online source. Teachers acknowledge, through the research, the need to acquire these skills.

Barrier 3: There is currently a lack of suitable software to support learning (68%FT, 69% PT teachers agree; 14% FT, 28% PT unsure).*

The proposed 'online learning' staff development programme will seek to ensure that there is a proper understanding of the software available in each curriculum area. A process will be developed to evaluate the existing software, identifying what is suitable, and disposing of the remainder. Over-time, I believe that the quality of software will improve. The suitability of 'new' software will be evaluated prior to purchase, and only appropriate software will be purchased. Teachers are also currently arranging for their teaching notes to be placed on the college network, enabling students and other teachers (when providing sickness cover for example) to access the material as and when required.

Barrier 4: Students expect teachers to personally provide them with the information they need to achieve their qualifications (62%FT, 67% PT teachers agree; 12%FT, 22% PT unsure).

This issue will be addressed through its inclusion in both the student 'IT induction' programme and the staff development 'online learning' programme. Teachers will need to understand that students who expect to be taught by 'traditional' methods are anxious about learning independently online. Teachers will therefore need to work with the students on successfully managing the transition process. The proposed student 'IT induction' programme will also need to include elements which assist students to make this transition from 'traditional' to 'online' learning. Many teachers will need support to be able to help students to manage this transition process.

Barrier 5: Students currently cannot access a college computer whenever they need to (68% FT, 42% PT teachers agree; 8% FT, 22% PT unsure)*

This barrier will be removed when the new college is operational in September 2005. To illustrate the level of improved access to computers in the new college, students on the current site have 'open' access to around 40 computers in the Learning Centre. In the new college, students will have access in each learning cluster to 35 computers. Therefore in the five 'non-IT curriculum' clusters, there will be 165 'open access' computers compared to the current 40! The sixth cluster will accommodate the IT curriculum, with around 110 computers configured in a workshop environment. The construction of the new college begins in January 2004. In the meantime, while student open access to PCs has not significantly improved on the current site, improved timetabling of 'IT curriculum' computer rooms has resulted in some improvement in their availability to 'non-IT' classes, providing them with increased opportunities to learn online. The research also concluded that learning in the college would improve if classroom, computer, text-book, group and individual learning opportunities were gathered together in curriculum-focused centres. The college research therefore confirmed the appropriateness of the decision to incorporate 'learning clusters' in the new college. There will be six learning clusters, each serving the curriculum needs of complementary curricula, where a range of different learning opportunities will be provided. There will be four classrooms in each cluster. Immediately adjacent to the classrooms will be an area where students and teachers will have open access to 35 computers for online learning and also individual and group working places for non-IT work. The relevant library books for the cluster curriculum will also be in the learning cluster. The 'staff room' for the teachers responsible for the cluster curriculum will also be in the relevant cluster. There will be no separate Library/Learning Centre in the new college. The design is intended to allow students to learn 'traditionally' in classrooms; independently or in groups on computers; independently or in groups on other media such as text, audio and visual. The teachers will control the learning, identifying classroom, PC-based, text-based, group or individual learning activities as appropriate to the particular learning outcome. Teaching colleagues believe this to be an ideal learning environment. The

lead-in time up to September 2005 will provide an opportunity to ensure that teachers and students have the necessary skills, knowledge and understanding to teach and learn effectively in this new learning environment. The research has been invaluable in identifying the barriers that will need to be removed if this objective is to be achieved in the time available. An illustrative design of the new college based on learning clusters is attached as appendix 6.

Barrier 6: There is inadequate technical provision to support any development of online learning (57% FT, 44% PT teachers agree; 15% FT, 42% PT unsure).

Partly due to the research and partly in preparation for the planned move to a new college in around eighteen months, three full time and one half-time additional technical support staff have been recruited to support the development of online learning. However, the adequacy of the level of technical support is nevertheless kept under review, and funding is available to increase the level of support if shown to be insufficient.

Barrier 7: The college network is not sufficiently reliable to support any development of online learning (44% FT, 31% PT teachers agree; 22% FT, 61% PT unsure).*

The reliability of the network is kept under constant review, as its efficiency has implications for so many aspects of college life. In particular, the college is adopting an approach to document management in the new college that will minimise the storage of documents in traditional 'filing cabinets', intending instead to store documents electronically on the college network. The decision taken was that the new college needs to be a 'college for the 21st century', and designed accordingly. The planning assumes that this transition will be successful, as staff rooms have been designed to be largely 'paperless'! Supporting teachers in this transition will be major part of the 'online learning' staff development programme leading up to the September 2005 move, which will have a high profile and status. Since the college research, there has been considerable investment in the college network that has improved its efficiency. However, for the reasons stated, the college will be expecting

the network to make a much greater contribution in the new college, so its reliability will continue to be monitored and remedial action taken if found to be problematic.

Barrier 8: Online learning requires students to be more active learners. Students will be uncomfortable with this (32% FT, 33%PT teachers agree; 30% FT, 17%PT unsure).

The college research revealed that many teachers believe that many of their students will be uncomfortable with becoming more active learners. It is obviously important that their learning should not be compromised by any move to online learning. The strategy to deal with this barrier will therefore need careful consideration, with the outcome probably being included in the proposed staff development programme.

Barrier 9: Teachers do not have the skills to confidently use online learning in curriculum delivery(32% FT, 30% PT teachers agree; 18% FT, 11% PT unsure)*

Arising from the research findings, supported by 94% of full time/fractional and 86% of part time teachers, staff development will focus on helping teachers to use online learning to teach their own subject. In addition, 36% of full time/fractional and 42% of part time teachers stated that they do not have experience of the practical application of online learning, while 32% of full time/fractional and 60% of part time teachers were unable to state that they knew how to design, develop and use online learning. Action has already been taken to remove these barriers. Previously, college policy was for teachers to be encouraged to undertake the 'European Computer Driving Licence' (ECDL) qualification. This qualification provided training in wordprocessing, databases, spreadsheets and graphics. It was a general IT qualification that the research shows the teachers do not want! There is, therefore, no longer an expectation that all teachers gain that qualification. The emphasis now is to provide each teacher with the IT skills they need to teach their own subject. Furthermore, the research found that 34% of full time/fractional and 39% of part time teachers cannot access and retrieve relevant subject-focused information through the Internet and college network. The focus now will, therefore, be to ensure that teachers

have full knowledge and understanding of the online information sources relevant to their own subjects. The research questionnaire shows that different teachers have different starting points in relation to their knowledge of online learning. More problematic, and much longer term, is the challenge to ensure that all full and part time teachers have the skills to successfully use online learning in their teaching, the success of which probably requires the removal of the other barriers identified in the research. However, the research also found that 45% of full time/fractional and 42% of part time teachers do not know, or are unsure if they do, how to help students to acquire the skills to enable them to convert information from online sources into relevant knowledge and understanding. This is a further barrier to be included in the planned staff development programme. The online learning staff development programme will, therefore, initially assess the level of online learning skills of each individual teacher and, on an individual basis, help teachers to acquire the necessary skills, knowledge and understanding to be able to successfully use online learning in their teaching.

Barrier 10: Teachers prefer to create their own learning materials, even if there are good quality learning materials available prepared by others (20%FT, 17% PT teachers agree; 26% FT, 28% PT unsure).

The college is encouraging a team approach to the development of learning materials, with each team member responsible for preparing material for certain aspects of each learning programme. It is intended that all the learning material for a programme will be available on the college network, accessible to students and teachers involved in that programme. However, recognizing that teachers may wish to customize those materials to particular students or situations, the aim is to make the material capable of minor customization by a teacher. However, 22% of full time/fractional and 45% of part time teachers were unable to state that they would willingly place their learning materials onto the college network. Teachers reticent about working in these ways will be supported in making the transition.

3. Limitation of the research, its relevance to further education, and opportunities for further research.

The research is initially concerned with teachers' perceptions of the effects of online learning, particularly whether its development would improve the teaching and learning process. As the research showed that the use of online learning in the college is underdeveloped, most teachers were unable to offer an opinion of the benefits of online learning based on personal experience. They were unable to state, for example, with any authority based on personal experience that online learning improves student achievement, arguably the strongest argument for adopting online learning. This is a limitation of the research. However, the research finding that most of the teachers in the college support the development of online learning, and believe that teaching and learning will improve as online learning develops is a very important conclusion in the context of the under-use of online learning in the college, and the secondary and further education sectors nationally. The research has reached the significant and important conclusion that it is not that teachers in the college do not believe in the benefits of online learning *per se*, but that it is the existence of barriers preventing their use of online learning. The research has provided the college teachers with the opportunity to identify those barriers, enabling college management, working alongside the teachers, to develop strategies to remove the barriers and to further develop online learning. Further research on the success of removing these barriers, and assessing the impact on teaching and learning, particularly on student achievement, would be extremely valuable to the college.

The research adopted a case study approach in asking particular questions about online learning in a single FE college. The study is not therefore intended to be generalizable to other FE colleges, or other sector educational institutions, which further limits the research. However, the literature review suggested that there may be occasions where others might 'intuitively' judge that 'their' situation is similar to 'this college's' situation, leading them to believe that this research is relevant to their own situation. It is only in this sense that the research into one college is generalizable to other colleges. However, the Learning and Skills Development Agency (LSDA), on

behalf of the National Learning Network (NLN), has recently invited colleges to bid from the NLN Transformation Projects fund for action-based projects that explore, produce and report on the transformation of teaching and learning from the application of online learning. The projects are planned begin in February 2004 and complete by April 2005. Eight large-scale projects will be funded up to £150,000 per project to evaluate online learning issues such as: what works and why? what are the key success factors to transform teaching and learning with online learning? what are the barriers to embedding online learning successfully, and how can they be overcome?

While it is not my intention to bid for funding on behalf of the college, I believe that my research will be an important contribution to this wider LSDA research and I therefore intend to submit details of my research and its conclusions to the LSDA . The allocation of such a large amount of funding, over one million pounds, is indicative of the importance placed on these online learning issues within the further education sector, and thereby also indicative of the significance of my own research. I will also submit details of my research and its conclusions to the local and national Learning and Skills Councils, the British Educational Communication and Technology Agency (BECTA) and the National Information and Learning Technologies Association (NILTA). I will also contribute a paper on my research to relevant local, regional and national education conferences and appropriate education journals, speaking to the paper at conferences if requested to do so. I have no doubt that there will be significant interest in my research in the light of its topicality, as evidenced by the high profile LSDA research. I will also make details of the research available to any FE college on request.

4. Personal reflections on the research

I have spent almost six years in total on this research, having to complete preparatory modules to qualify for the Ed Doc programme. It has been a challenge, and there have been times when I have been tempted to give up, particularly as there are no career or financial benefits attached to completing the research. What has kept me going is the

desire to answer the research questions: I really did want to know the answers, both from a personal perspective as an academic researcher as well as 'college principal' perspective. There is no doubt that the research will result in changes in how the college operates in relation to online learning development and future use. As described above, I also believe it will influence national policy as part of the research that the FE sector, through the Learning and Skills Development Agency, is funding to increase its understanding of issues relating to online learning development, many of which are the subject of my research.

Finally, as an FE college principal, it is important that I make decisions based on sound intelligence. I have nevertheless found the academic rigour of the research at a doctorate level challenging, particularly the need to justify every 'claim' made, and every aspect of the research methodology adopted. I have, therefore, been appropriately reminded of the importance of ensuring that claims, and decisions that follow those claims, are valid in that they are fully justified by the available intelligence. I have no doubt that being reminded of this process will improve my future performance as a college principal, while retaining the ability to make decisions on less than full information when the timescale does not allow the luxury of properly conducted research.

REFERENCES

Akerlind, G.S., Trevitta, C. (1999) 'Enhancing self-directed learning through educational technology: when students resist change', *Innovations in Education and Training International*, vol 36, no. 2, pp 96-105.

Alexander, S. and Boud, D. (2001) 'Learners still learn from experience when on-line' in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

Ali, A. and Franklin, T. (2001) 'Internet Use in the Classroom: Potential and Pitfalls for Student Learning and Teacher-Student Relationships', *Educational Technology*, July-August, pp 57-59.

Barker, P. (1999) 'Using Intranets to support teaching and learning', *Innovations in Education and Training International*, vol 36, no 1, pp 3-9

Bassey, M. (1984) 'Pedagogic Research: on the relative merits of search for generalisation and the study of single events', in Bell, J., Bush, T., Fox, A., Goodey, J., Goulding, S. (eds) *Conducting Small-Scale Investigations in Educational Management*, London, Harper & Row/Open University.

Bassey, M. (2001) 'The concept of fuzzy generalisation', *BERA Symposium at AERA in Seattle April 2001*, pp 5-8.

Beaty, E., Dall'alba, G. and Marton, F. (1990) *Conceptions of Academic Learning*, Occasional Paper 90.4, Eradu Rmit, Victoria University of Technology.

Bechoffer, F. and Paterson, L. (2000) *Principles of Research Design in the Social Sciences*, London, Routledge.

Beernaerts, S. (2001) *ADAPT, EMPLOYMENT and EQUAL*, Report of On-Line Learning 2001 Conference, London, 13-14th Feb., 2001, pp11-12.

Bonk, C., Kirkley, J., Hara, N., Dennen, V. (2001) 'Finding the instructor in post-secondary online learning: pedagogical, social, managerial and technological locations', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

British Educational Communications and Technology Agency (1999) *Learning On-Line Electronic Learning Resources in Further Education*, Coventry, BECTA.

British Educational Communications and Technology Agency (2001a) *The Secondary School of the Future: A preliminary report to the DfEE*, BECTA. (also www.becta.org.uk/news/reports)

British Educational Communications and Technology Agency (2001b) *Primary Schools of the Future – Achieving Today A Report to the DfEE*, BECTA. (also available at www.becta.org.uk/news/reports/primary/future)

British Educational Communications and Technology Agency (2001c) *Primary Schools - ICT and Standards A Report to the DfES on Becta's analysis of national data from OFSTED and QCA*, BECTA. (also available at www.becta.org.uk)

Browne, E. (2000a) *Oh to be a learner now the learning age is here*, Paper presented at the BERA Conference 2000.

Browne, E. (2000b) 'Information and Communication Technology and the Management of Change in Two Post-Compulsory Educational Institutions', *Research in Post-Compulsory Education*, Volume 7, Number 2, pp 177-188

- Brunt, J. M. (1997) 'Can you put your arms around a student on the Internet?', in Field, J. (ed) *Electronic Pathways: Adult learning and the new communication technologies*, Leicester, NIACE.
- Bryman, A. (1988) *Quantity and Quality in Social Research*, London, Unwin Hyman.
- Buck, M. (1997) 'The global demands for change', in Field, J. (ed) *Electronic Pathways: Adult learning and the new communication technologies*, Leicester, NIACE.
- Burrell, G. and Morgan, G. (1979) *Sociological Paradigms and Organisational Analysis*, London, Heinemann
- Calder, J. (2000) *Beauty lies in the eye of the beholder*, International Review of Research in Open and Distance Learning, Canada, Athabasca University.
- Calder, J. and McCollum, A. (1998) *Open and Flexible Learning in Vocational Education and Training*, London, Kogan Page.
- Canning, R. (2002) 'Distance or Dis-stancing education? A case study in technology-based learning', *Journal of Higher and Further Education*, Vol 26, no 1, pp 29-42.
- Cohen, M. (1993) 'Machines for thinking: the computer's role in schools', *Educational and Training Technology International*, 30, 1, pp 57-59.
- Cohen, L. and Manion, L. (1980) *Research Methods in Education*, Beckenham, Croom Helm.
- Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*, London, RoutledgeFalmer.

Coleman, M. (1999) 'Conclusions', in Middlewood, D., Coleman, C. and Lumby, J. (eds) *Practitioner research in Education Making a Difference*, London, Paul Chapman.

Coomey, M. and Stephenson, J. (2001) 'Online learning: it is all about dialogue, involvement, support and control – according to the research', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

Cuban, L. (1993) 'Computers meet classrooms: Classroom wins', *Teachers College Record*, 95, 2, pp 185-210.

Davison, L., Bryan, T. and Griffiths, R. (1999) 'Reflecting Students Learning Styles', *Active Learning*, no. 10, pp 10-13.

Dearing, R. (1997) *Higher Education in the Learning Society* (known as the Dearing Report) The National Committee of Inquiry into Higher Education, HMSO, London.

Denscombe, M. (1998) *The Good Research Guide for small-scale social research projects*, Buckingham, Open University Press.

Denzin, N.K. and Lincoln, Y.S. (eds) (2003) *The Landscape of Qualitative Research Theories and Issue*, London, Sage.

Department for Education and Employment (1999a) *Learning to Succeed a new framework for post-16 learning*, London, Department for Education and Employment.

Department for Education and Employment (1999b) *Second report of the National Skills Task Force Delivering skills for all*, London, Department for Education and Employment.

Department for Education and Skills (2003) *Towards a Unified e-Learning Strategy Consultation Document July 2003*, London, Department for Education and Skills.

Dickinson, D. and Stewart, V. (2001) 'Towards an androgogy for living in an information society', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

Doring, A. (1999) 'Information Overload?', *Adults Learning*, June 1999, pp 8-10.

Evers, C. and Lakomski, G. (1991) *Knowing Educational Administration: Contemporary Methodological Controversies in Educational Administration*, Oxford, Permagon Press.

Fayter, D. (1998) 'Issues in training lecturers to exploit the Internet as a teaching resource', *Education and Training*, 40, (8), pp 334-339.

Fisher, E. (1993) 'The teacher's role', in Scrimshaw, (P) (ed.) *Language, Classrooms and Computers*, London, Routledge.

Fox, R. (2001) 'Constructivism Examined', *Oxford Review of Education*, Vol. 27, No. 1, pp 23-35.

Further Education Funding Council (1996) *Report of the Learning and Technology Committee*, Coventry, Further Education Funding Council.

Further Education Funding Council (2000) *Open and Distance Learning National report from the Inspectorate 2000-01*, Coventry, Further Education Funding Council.

Galbraith, J. (2000) 'Knowledge management technology in education: an overview', *Educational Technology*, vol 40, no. 5, pp 28-33.

Goldsworthy, R. (1999) 'Lenses on learning and technology: role and opportunities for design and development', *Educational Technology*, vol 39, no. 4, pp 59-62.

Gorard, S. and Selwyn, N. (1999) 'Switching on the learning society? Questioning the role of technology in widening participation in lifelong learning', *Journal of Educational Policy*, vol 14, no 5, pp 523-534.

Griffiths, M. (1998) *Educational Research for Social Justice getting off the fence*, Buckingham, Open University Press.

Guba, E and Lincoln, Y. (1985) *Naturalistic Enquiry*, London, Sage.

Guba, E and Lincoln, Y. (1989) *Fourth Generation Evaluation*, London, Sage.

Guri-Rozenblitz, S. (1993) 'Differentiating between distant/open education systems – parameters for comparison', *International Review of Education*, 39, (4), pp 287-306.

Hammersley, M. (1992) *What's wrong with Ethnography: Methodological Explorations*, London and New York, Routledge.

Hammersley, M. (1999) *Case study Method: A Brief Introduction and Bibliographic Guide*, School of Education Occasional Research Paper Series No. 6, Open University.

Hargreaves, D. (1996) *Teaching is a research-based profession: possibilities and prospects*, Teacher Training Agency Annual Lecture.

Hargreaves, D. (1998) 'improving research to enhance teaching', in *Professional Development Today*, Vol 1, Issue 2, pp 47-55.

Hase, S. and Ellis, A. (2001) 'Problems with learning online are systematic, not technical', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

Helm, P. (1997) 'Teaching and learning with the new technologies: for richer, for poorer; for better, for worse', in Field, J. (ed) *Electronic Pathways: Adult learning and the new communication technologies*, Leicester, NIACE.

Higher Education Funding Council England (1998) *Report 98/47 An evaluation of the Computers in Education Initiative and Teaching and Learning Technology Support*, HEFCE.

Higher Education Funding Council England (1999a) *Use of TLTP materials in UK higher education*, Report 99/39, HEFCE.

Higher Education Funding Council England (1999b) *Communications and information technology materials for learning and teaching in UK higher and further education*, Summary Report 99/60, HEFCE.

Hodgson, A. and Spours, K. (1999) *New Labour's Educational Agenda Issues and Policies for Education and Training from 14+*, London, Kogan Page.

Hodson, P., Connolly, M., Saunders, D. (2001) 'Can Computer-based Learning Support Adult Learners', *Journal of Further and Higher Education*, Vol.25, no.3, pp 325-335.

Jackson, B. and Anagnostopoulou, K. (2001) 'Making the right connections: improving quality in online learning', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

Jonassen, D.H. and Land, S.M. (eds) (2000) *Theoretical Foundations of Learning Environments*, Mahwah, NJ, Lawrence Erlbaum.

Kirkup, G. and Jones, A. (1996) 'New technologies for open learning: the superhighway to the learning society', in Ragatt, P., Edwards, R., Small, N. (eds) *The learning society: challenges and trends*, London, Routledge.

Lasonen, J. and Stenstrom, M-L. (1995) 'Introduction of educational structure in Finland', in Lasonen, J. and Stenstrom, M-L, (eds) *Contemporary issues of occupational education in Finland* Jyvaskyla, Kopi-Jyva, Oy.

Leathwood, C. (1999) 'Technological Futures: gendered visions of learning?', *Research in Post-Compulsory Education*, Vol. 4, no. 1, pp 5-22.

Learning and Skills Council (2002) *Report of the Learning and Skills Council's Distributed and Learning Group*, Coventry, Learning and Skills Council.

Learning and Skills Development Agency (2001) *Response to the Curriculum Online Consultation Paper (2001)*, London, Learning and Skills Development Agency.

Lewis, R. (1999) 'The role of technology in learning: managing to achieve a vision', *British Journal of Educational Technology*, vol 30, no. 2, pp 141-150.

Lewis, T., Gould, M. and Ryan, M. (1997) 'Computer-conferencing and the continuing professional development of teachers in the post-16 sector', in Field, J. (ed) *Electronic Pathways: Adult learning and the new communication technologies*. Leicester, NIACE.

Lumby, J. (1999) 'Developing the Management of People', in Middlewood, D., Coleman, C. and Lumby, J. *Practitioner research in Education Making a Difference*, London, Paul Chapman.

MacDonald, J. (2001) 'On-Line Learning: a Radical Pedagogy?', *Adults Learning* January, pp 20-22.

Maddin, E.A. (1997). 'The real learning begins in the classroom: on-the-job training and support for teachers using technology', *Educational Technology*, September-October, pp 56-9.

Mallinen, S. (2001) 'Teacher effectiveness and online learning', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

Marchionini, G. (1999) 'Educating responsible citizens in the information society', *Educational Technology*, vol 39, no. 2, pp 17-26

Mason, R. (2001) 'Effective facilitation of online learning: The Open University experience', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

Mayes, T. (2001) 'Learning technology and learning relationships', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

McNair, S. (1997) 'Telematics and adult learning' in Field, J. (ed) *Electronic Pathways: Adult learning and the new communication technologies*, Leicester, NIACE.

Middlewood, D., Coleman, C. and Lumby, J. (1999) *Practitioner research in Education Making a Difference*, London, Paul Chapman

Moro, B. (1997) 'A pedagogy of the hypermedia' in A-K Korsvold, A. K. and Ruschoff, B. (eds) *New Technologies in Language Learning and Teaching*, Education Committee: Council for Cultural Co-operation, Strasbourg: Council of Europe Publishing.

Mudge, S. (1999) 'Delivering multimedia teaching modules via the Internet', *Innovations in Education and Training International*, vol 36, no. 1, pp11-16.

National Further Education Research (2001) 'Information and Communications Technology (ICT) in the Primary School', *Annual Survey of Trends in Education, Autumn 2001*, Digest 11, NFER.

National Grid for Learning (2001) *Curriculum Online – a Consultation Paper*, London, Department for Education and Employment.

National Grid for Learning (2002) *Transforming the Way We Learn A Vision for the Future of ICT in Schools*, London, Department for Education and Employment.

Nisbet, J., Watt, J. (1984) 'Case Study' in Bell, J., Bush, T., Fox, A., Goodey, J., Goulding, S. (eds) *Conducting Small-Scale Investigations in Educational Management*, London, Harper & Row/Open University.

Noss, R. and Pachler, N. (1999) 'The Challenge of New Technologies: Doing Old Things in a New Way, or Doing New Things', in Mortimore, P. (ed.) *Understanding pedagogy and its impact on learning*, London, Paul Chapman Publishing.

O'Banion, T. (1997) *A Learning College for the 21st Century*, Phoenix, American Council on Education.

OFSTED (2001) *ICT in Schools, The Impact of Government Initiatives, An interim report April 2001*, London, OFSTED.

Patton, M.Q. (1990) *Qualitative Evaluation and Research Method*, London, Sage.

Pelgrum, W.J. and Plomp, T. (1993) 'The use of computers in education in 18 countries', *Studies in Educational Evaluation*, 19, 2, pp 101-125.

Phipps, R. and Merisotis J. (1999) *What's the Difference? A review of contemporary research on the effectiveness of distance learning in higher education*, Washington

DC, The Institute for Higher Education Policy.

URL:<http://www.ihep.com/PUB.htm#diff>

Pollock, S. and Squire, D. (2001) 'Television and learning: ways of connecting media and learning', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

Powell, B. and Davies, S. (2001) *The State of ILT in FE Colleges* Report to the National Learning Programme Board of A Survey into ILT Provision, Access and Policy in FE Colleges in England with additional information drawn from updated college ILT strategies, BECTA.

Pye Tait (2000) *Skills Foresight for FE phase 1*, London, FENTO.

Pye Tait Ltd (2001) *Further Education Workforce Development Plan*, commissioned by Further Education National Training Organisation (FENTO).

Ranson, S. (1996) 'The future of educational research', *British Educational Research Journal*, 22 (5), pp 532-6.

Rosenburg, M., Lecuyer, J. (2001) *Building Successful and Sustainable e-Learning Strategy*, Report of On-Line Learning 2001 Conference, London, 13-14th Feb., 2001, pp 21-25

Ruohotie, P. (1996) *Oppimalla Osaamiseen ja Menestykseen*, Helsinki, Oy Edita Ab.

Sankey, K. and Dibble, D. (1997) 'Low-cost computer-mediated conferencing for part time evening degree students', in Field, J. (ed) *Electronic Pathways: Adult learning and the new communication technologies*, Leicester, NIACE.

Schank, R. (2001) *A Learning Revolution- Growing Business or Incipient Revolution?*. Report of On-Line Learning 2001 Conference, London, 13-14th Feb., 2001, pp 35-37

Schlais, D. and Davis, R. (2001) 'Distance learning through educational networks: the global view experience', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

Selwyn, N., Marriott, N., Marriott, P. (2000) ' 'Getting a Tick in the Box': exploring accountancy undergraduates use of information and communications technology', in *Research in Post-Compulsory Education*, Vol.5, no. 2, (193-209)

Sheffield Hallam University, Learning and Skills Development Agency (2002) *What we know about information and learning technology: The impact of the National Learning Network on teaching and learning*, Coventry, Learning and Skills Council

Silverman, D. (2000) *Doing Qualitative Research A Practical Handbook*, London, Sage.

Silverman, D. (2001) *Interpreting Qualitative Data*, London, Sage.

Sinclair, J. (1998) 'Does the Virtual Classroom really exist...or is it still...out there', *The Electronic Library*, 16, (5), pp 297-299.

Somekh, B. and Davies, R. (1991) 'Towards a pedagogy for information technology', *The Curriculum Journal*, 2, 2, pp153-70.

Stephenson, J. (2001) 'Learner-managed learning – an emerging pedagogy for online learning', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

Stradling, B., Sims, D. and Jamison, J. (1994) *Portable Computers Pilot Evaluation Report*, Coventry, NCET.

Swaney, S. (2001) *From Strategy to Practice – Integrating ILT into the Curriculum*, FERL Website, <http://www.ferl.becta.org.uk>.

Tait, A. (2000) 'Students and attachment; the nature of electronic relationships', *Adults Learning*, June, pp 20-22.

Taylor, C. (1985) 'Interpretation and the sciences of man', in *Philosophy and the Human Sciences: Philosophical Papers 2*, Cambridge, Cambridge University Press.

Taylor, J. and Laurillard, D. (1995) 'Supporting Resource Based Learning', in Heap, N., Thomas, R., Eison, G., Mason, R., Mackay, H. (eds) *Information Technology and Society*, London, Sage.

Taylor Nelson Sofres-Social (2001) *Young People and ICT*, Research and Evaluation Series, DfEE.

Terwell, J. (1999) 'Constructivism and its implications for curriculum theory and practice', *Curriculum Studies* 1999, vol. 31, no. 2, pp 195-199.

Tight, M. (2002) *Key Concepts in Adult Education and Training*, London, RoutledgeFalmer.

Townsend, T., Clarke, P. and Ainscow, M. (eds) (1999) *Third Millennium Schools: a world of difference in effectiveness and improvements*, The Netherlands, Swets and Zeitlinger BV.

University of Nottingham, Open University, Manchester Metropolitan University, University of Leicester (2001) *ImpaCT2 Emerging Findings from the evaluation of the Impact of Information and Communication Technologies on Pupil Attainment*, Research and Evaluation Series, HMSO, London

Van den Akker, J., Kuersten, P. and Plomp, T. (1992) 'The integration of computer use in education', *International Journal of Educational Research*, 17, 1, pp 65-76.

Veen, W. (1993). 'How teachers use computers in instructional practice: four case studies in a Dutch secondary school', *Computers and Education*, 21, 1/2, pp 1-8.

Ward H., Tracey, K., Barker, M. (1998) 'Developing a Virtual College,' in Banks, S., Graebner, C., McConnell, D. (eds) *Network lifelong learning: Innovative approaches to education and training through the Internet*, Sheffield, University of Sheffield.

Watkins, C. and Mortimore, P. (1999) 'Pedagogy: What Do We Know?' in Mortimer, P. (ed) *Understanding Pedagogy and its implications on learning*, London, Paul Chapman.

Watson, D.M. (1993). *The Impact Summary: an evaluation of the Impact of Information Technology on Children's Achievement in Primary and Secondary Schools*. London, University of London.

Whitlock, Q. (2001) 'Course design for online learning – what's gone wrong?', in Stephenson, J. (ed) *Teaching and Learning Online: Pedagogies for New Technologies*, London, Kogan Page.

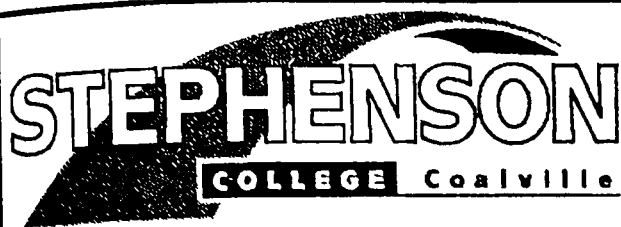
Wilson, M.J. (1984) 'Styles of Research', in Bell, J., Bush, T., Fox, A., Goodey, J., Goulding, S. (eds) *Conducting Small-Scale Investigations in Educational Management*, London, Harper & Row/Open University.

Wilson, T., Whitelock, D., Simpson, N. and Greenwood, J. (1998) 'Teaching over the Internet: How is the UK's Open University doing it?', in Banks, S., Graebner, C., McConnell, D. (eds) *Network lifelong learning: Innovative approaches to education and training through the Internet*, Sheffield, University of Sheffield.

Wragg, E.C. (1984) 'Conducting and Analysing Interviews,' in Bell, J., Bush, T., Fox, A., Goodey, J., Goulding, S. (eds) *Conducting Small-Scale Investigations in Educational Management*, London, Harper & Row/Open University.

Yair, G. (2000) 'Reforming Motivation: how the structure of instruction affects students learning experience', *British Educational Research Journal*, Vol 26, No.2, pp 191-210.

Youngman, M.B. (1984) 'Designing Questionnaires', in Bell, J., Bush, T., Fox, A., Goodey, J., Goulding, S. (eds) *Conducting Small-Scale Investigations in Educational Management*, London, Harper & Row/Open University.



Developing Information and Learning Technology (ILT) at Stephenson College

Please read each question carefully and mark your answers like this ☐ . Do NOT tick, cross or circle.

1. Male ☐ Female ☐

2. Full-Time ☐ Fractional ☐ Part-Time ☐

Statements 3 - 30 seek your views on the implications of ILT on student learning if ILT were to be developed at Stephenson College

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
3. ILT enables learning to occur at a time, place and pace convenient to the learner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. ILT enables learning tasks to be repeated as often as required until the student acquires the intended knowledge and understanding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. ILT improves learning by increasing individual learning opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. ILT encourages students to become more active learners, "seeking" instead of "receiving" information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. ILT does not improve the learning process by enabling students to take more responsibility for their learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. ILT, through e-mail and bulletin boards, will not improve opportunities for students to communicate with each other and with lecturers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. ILT will not increase the availability of information which is interesting and relevant to student learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. When other students are learning independently with ILT, I will be able to provide more personal support to those students who need it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. ILT restricts opportunities for individual students to adopt the learning style most appropriate for them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. ILT improves learning, but only if used in addition to effective traditional learning methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. ILT does not improve student motivation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I do not know how to design, develop and use ILT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. As ILT is only concerned with gathering information and not its effective use, effective teaching/learning will suffer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. The use of ILT will mean that students will need more tutor support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Students will not be able to cope with the increased information available through ILT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. ILT will not result in students becoming isolated and unsupported	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PLEASE TURN OVER

Strongly Agree Agree Neutral Disagree Strongly Disagree

19. ILT results in too much flexibility, which will disadvantage a novice or unsophisticated learner ☐ ☐ ☐ ☐ ☐
20. ILT will be able to diagnose the individual needs of a student ☐ ☐ ☐ ☐ ☐
21. An inexperienced or weak learner may be unable to take the responsibility for their own learning expected with ILT ☐ ☐ ☐ ☐ ☐
22. With ILT, my contact with students will not reduce ☐ ☐ ☐ ☐ ☐
23. ILT is not being developed by management as a cost saving action ☐ ☐ ☐ ☐ ☐
24. With ILT, my workload will not increase ☐ ☐ ☐ ☐ ☐
25. ILT will not improve levels of student achievement ☐ ☐ ☐ ☐ ☐
26. I am unwilling to place my teaching material onto the College network ☐ ☐ ☐ ☐ ☐
27. I will only use ILT if it enables me to continue to teach in the same way ☐ ☐ ☐ ☐ ☐
28. With ILT, students will waste their time searching for inappropriate material and activities ☐ ☐ ☐ ☐ ☐

Other positive/negative effects on learning at Stephenson College if ILT were to be developed not covered in statements 3 - 28

29. Positive _____

30. Negative _____

Statements 31 - 32 seek your overall assessment on the effect of ILT on student learning if ILT were to be developed at Stephenson College

31. I believe that the development of ILT will improve the student learning experience ☐ ☐ ☐ ☐ ☐
32. Using ILT will not improve my effectiveness as a teacher ☐ ☐ ☐ ☐ ☐

Statements 33 - 50 are intended to identify issues that would need to be addressed if ILT were to be developed at Stephenson College

33. ILT staff development should focus on helping me to use ILT to teach my own subject ☐ ☐ ☐ ☐ ☐

PLEASE CONTINUE ON PAGE 3

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
34. I do not have the skills to confidently use ILT in curriculum delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. I have little or no experience in the practical application of ILT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. I am able to access and retrieve relevant subject-focused information through the Internet and College network	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. Students expect me to personally provide them with the information they need to achieve their qualifications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. ILT requires students to be more active learners. My students will be uncomfortable with this	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. My students do not know how to access the Internet and College network	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. My students need new skills to be able to convert information from ILT sources into relevant knowledge and understanding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. I know how to help students to acquire the skills to enable them to convert information from ILT sources into relevant knowledge and understanding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. I will need to be the "gatekeeper" for the students to ensure that the information they acquire through ILT is relevant to their learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. My students cannot currently access a College computer whenever they need to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. Learning would improve if classroom, computer, text book, group and individual learning opportunities were gathered together in curriculum-focused centres	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45. There is currently a lack of suitable software to support learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. I prefer to create my own learning materials, even if there are good quality learning materials available prepared by others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. There is adequate technical provision to support any development of ILT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. The College network is not sufficiently reliable to support any development of ILT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. I would want to develop ILT in my teaching, even if senior management did not push its development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50. Other issues which need to be addressed if ILT were to be developed are:					

Thank you for taking the time to complete this questionnaire. Please return in the attached freepost envelope before 22nd March 2002

APPENDIX TWO

Our Ref: Questionnaire letter sent to all full and part time teaching staff re: questionnaire
DJR/ZML

Your Ref:

Dear

Developing Information Learning Technology at Stephenson College

The role that Information and Learning Technology (ILT) should play in the learning of students is a major curriculum issue. The role of ILT is particularly relevant to us at Stephenson College with our plans to relocate to a new college site. It is vital, therefore, that there is appropriate consultation with, and agreement by, college lecturing staff before any major changes in curriculum delivery using ILT are adopted here at Stephenson College.

I am therefore writing to ask for your views on the following questions:

1. Does the use of ILT improve student learning?
2. If there is broad agreement by college teaching staff that ILT does improve student learning, what are the barriers that are currently impeding the development of ILT in the college?

To find out your views on these important questions, I enclose a questionnaire that I hope you will complete and return in the enclosed envelope so that it reaches me before Friday 22nd March 2002, which is the last day of term. Please note that:

- Completing the questionnaire should take about 15 minutes
- Your participation is entirely voluntary.
- Should you decide to complete the questionnaire, all your responses will be totally confidential. It is not possible to trace any questionnaire back to the person who completed it.

(Cont'd)

2.

- While I am conducting the research as a student on the Open University Doctorate in Education programme and not as the college principal, the way ILT is developed in the college in the future will derive directly from the outcome of this research. Your views are therefore very important.
- For the purpose of this research and your responses, ILT only includes:
 - accessing college-developed teaching notes on the college network and intranet;
 - accessing learning software packages through the college network and intranet;
 - accessing specific education websites through the Internet;
 - accessing the Internet to find appropriate information to support student learning;
 - using e-mail to support student learning.
- There is no significance in the fact that about half of the statements are ‘positive’ and half are ‘negative’. This is a requirement of questionnaire design.
- A copy of the questionnaire results and analysis will be provided to all teaching staff.

I very much hope that you will take this opportunity to directly influence college policy on the future development of ILT by completing the questionnaire and returning it in the enclosed envelope by the 22nd March 2002.

Thank you.

Yours sincerely

David Rathe



Developing Information and Learning Technology (ILT) at Stephenson College

No of Respondents: 50

File Reference: ILT2002A.001..002

1. Male Female

2. Full-Time and Fractional Overall

Statements 3 – 30 seek your views on the implications of ILT on student learning if ILT were to be developed at Stephenson College

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
3. ILT enables learning to occur at a time, place and pace convenient to the learner	14%	74%	12%	0%	0%
4. ILT enables learning tasks to be repeated as often as required until the student acquires the intended knowledge and understanding	22%	64%	8%	6%	0%
5. ILT improves learning by increasing individual learning opportunities	20%	46%	26%	8%	0%
6. ILT encourages students to become more active learners, 'seeking' instead of 'receiving' information	18%	44%	26%	12%	0%
7. ILT does not improve the learning process by enabling students to take more responsibility for their learning	0%	18%	26%	48%	8%
8. ILT through e-mail and bulletin boards, will not improve opportunities for students to communicate with each other and with lecturers	2%	10%	12%	64%	12%
9. ILT will not increase the availability of information which is interesting and relevant to student learning	0%	6%	10%	64%	20%
10. When other students are learning independently with ILT, I will be able to provide more personal support to those students who need it	10%	72%	14%	4%	0%
11. ILT restricts opportunities for individual students to adopt the learning style most appropriate for them	2%	31%	35%	30%	2%
12. ILT improves learning, but only if used in addition to effective traditional learning methods	38%	42%	16%	2%	0%
13. ILT does not improve student motivation	6%	18%	34%	36%	6%
14. I do not know how to design, develop and use ILT	6%	16%	10%	50%	18%
15. As ILT is only concerned with gathering information and not its effective use, effective teaching/learning will suffer	4%	14%	14%	60%	8%
16. The use of ILT will mean that students will need more tutor support	4%	30%	38%	28%	0%
17. Students will not be able to cope with the increased information available through ILT	4%	20%	22%	52%	2%
18. IL will not result in students becoming isolated and unsupported	4%	42%	22%	26%	6%

PLEASE TURN OVER

No of Respondents: 50

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
19. ILT results in too much flexibility, which will disadvantage a novice or unsophisticated learner	6%	46%	14%	30%	4%
20. ILT will be able to diagnose the individual needs of a student	2%	28%	26%	40%	4%
21. An inexperienced or weak learner may be unable to take the responsibility for their own learning expected with ILT	22%	58%	8%	8%	4%
22. With ILT, my contact with students will not reduce	14%	50%	20%	14%	2%
23. ILT is not being developed by management as a cost saving action	4%	43%	37%	12%	4%
24. With ILT, my workload will not increase	2%	12%	32%	42%	12%
25. ILT will not improve levels of student achievement	4%	16%	40%	34%	6%
26. I am unwilling to place my teaching material onto the College network	2%	8%	12%	48%	30%
27. I will only use ILT if it enables me to continue to teach in the same way	2%	4%	22%	60%	8%
28. With ILT, students will waste their time searching for inappropriate material and activities	10%	26%	30%	30%	4%

Other positive/negative effects on learning at *Stephenson College* if ILT were to be developed not covered in statements 3 - 28

29. Positive

30. Negative

Statements 31 – 32 seek your overall assessment on the effect of ILT on student learning if ILT were to be developed at *Stephenson College*

31. I believe that the development of ILT will improve the student learning experience	20%	62%	14%	2%	2%
32. Using ILT will not improve my effectiveness as a teacher	0%	18%	26%	48%	8%

Statements 33 – 50 are intended to identify issues that would need to be addressed if ILT were to be developed at *Stephenson College*

33. ILT staff development should focus on helping me to use ILT to teach my own subject	36%	58%	4%	2%	0%
---	-----	-----	----	----	----

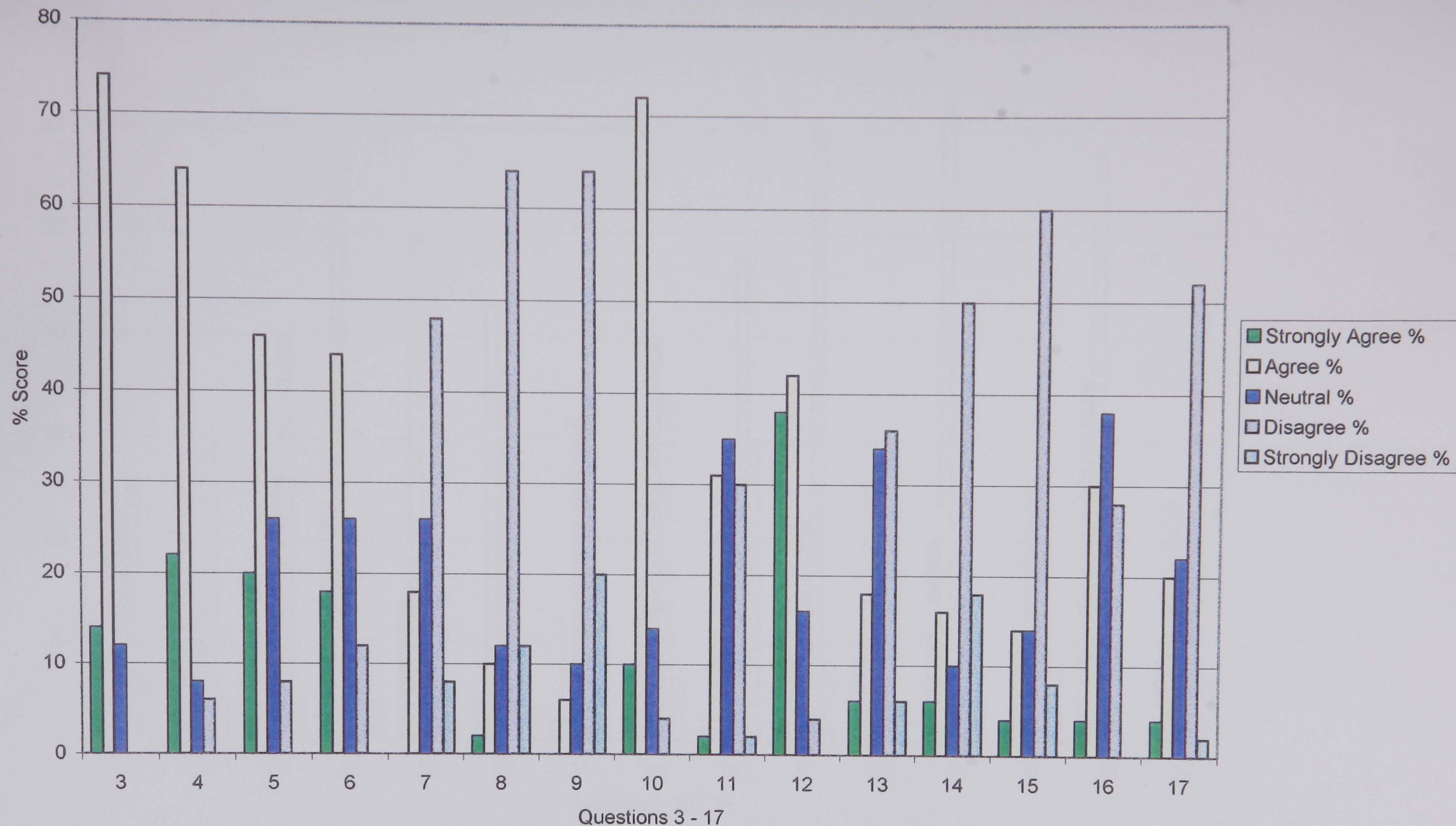
PLEASE CONTINUE ON PAGE 3

No of Respondents: 50

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
34. I do not have the skills to confidently use ILT in curriculum delivery	8%	24%	18%	44%	6%
35. I have little or no experience in the practical application of ILT	4%	18%	14%	56%	8%
36. I am able to access and retrieve relevant subject-focused information through the internet and College network	14%	52%	22%	12%	0%
37. Students expect me to personally provide them with the information they need to achieve their qualifications	10%	52%	12%	24%	2%
38. ILT requires students to be more active learners. My students will be uncomfortable with this	2%	30%	30%	36%	2%
39. My students do not know how to access the internet and College network	0%	16%	26%	46%	12%
40. My students need new skills to be able to convert information from ILT sources into relevant knowledge and understanding	12%	58%	16%	10%	4%
41. I know how to help students to acquire the skills to enable them to convert information from ILT sources into relevant knowledge and understanding	2%	53%	19%	24%	2%
42. I will need to be the 'gatekeeper' for the students to ensure that the information they acquire through ILT is relevant to their learning	10%	68%	16%	4%	2%
43. My students cannot currently access a College computer whenever they need to	41%	27%	8%	18%	6%
44. Learning would improve if classroom, computer, text book, group and individual learning opportunities were gathered together in curriculum-focused centres	28%	40%	26%	6%	0%
45. There is currently a lack of suitable software to support learning	44%	24%	14%	18%	0%
46. I prefer to create my own learning materials, even if there are good quality learning materials available prepared by others	6%	14%	26%	50%	4%
47. There is adequate technical provision to support any development of ILT	4%	24%	15%	36%	21%
48. The College network is not sufficiently reliable to support any development of ILT	20%	24%	22%	32%	2%
49. I would want to develop ILT in my teaching, even if senior management did not push its development	18%	60%	14%	6%	2%
50. Other issues which need to be addressed if ILT were to be developed are:					

PLEASE SEE ATTACHED FOR COMMENTS

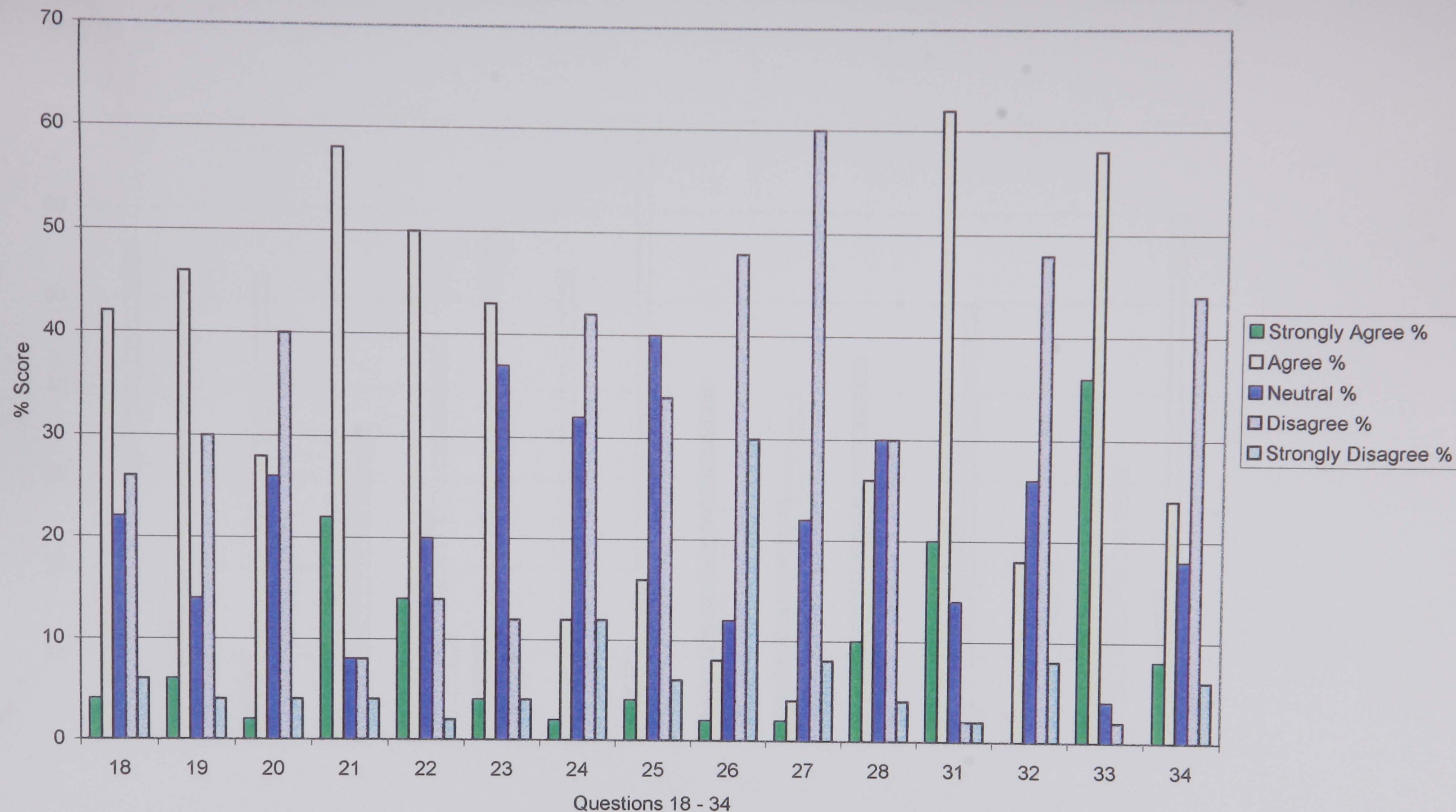
Developing Information & Learning Technology (ILT) - Full-Time & Fractional



3. ILT enables learning to occur at a time, place & pace convenient to the learner
4. ILT enables learning tasks to be repeated as often as required until the student acquires intended knowledge & understanding
5. ILT improves learning by increasing individual learning opportunities
6. ILT encourages students to become more active learners 'seeking' instead of 'receiving' information
7. ILT does not improve the learning process by enabling students to take more responsibility for their learning
8. ILT, through e-mail and bulletin boards will not improve opportunities for students to communicate with each other & lecturers
9. ILT will not increase the availability of information which is interesting and relevant to student learning
10. When other students are learning independently with ILT I will be able to provide more personal support to those students who need it

11. ILT restricts opportunities for individual students to adopt the learning style most appropriate for them
12. ILT improves learning but only if used in addition to effective traditional learning methods
13. ILT does not improve student motivation
14. I do not know how to design, develop and use ILT
15. As ILT is only concerned with gathering information & not its effective use, effective teaching/learning will suffer
16. The use of ILT will mean that students will need more tutor support
17. Students will not be able to cope with the increased information available through ILT

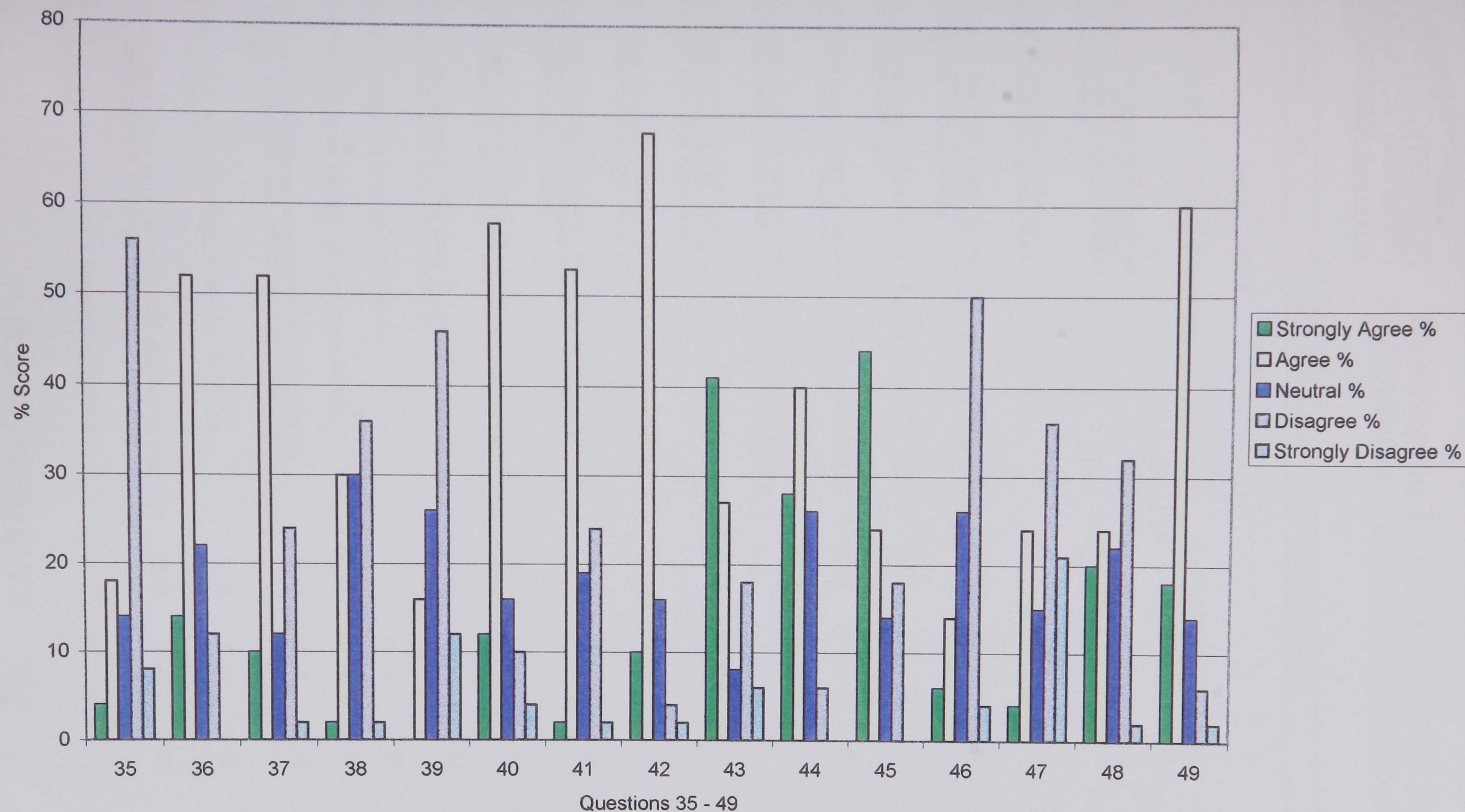
Developing Information & Learning Technology (ILT) - Full-Time & Fractional



18. ILT will not result in students becoming isolated and unsupported
 19. ILT results in too much flexibility, which will disadvantage a novice or unsophisticated learner
 20. ILT will be able to diagnose the individual needs of a student
 21. An inexperienced or weak learner may be unable to take responsibility for their own learning expected with ILT
 22. With ILT, my contact with students will not reduce
 23. ILT is not being developed by management as a cost-saving action
 24. With ILT my workload will not increase
 25. ILT will not improve levels of student achievement

26. I am unwilling to place my teaching material onto the College network
 27. I will only use ILT if it enables me to continue to teach in the same way
 28. With ILT students will waste their time searching for inappropriate material and activities
 31. I believe that the development of ILT will improve the student learning experience
 32. Using ILT will not improve my effectiveness as a teacher
 33. ILT staff development should focus on helping me to use ILT to teach my own subject
 34. I do not have the skills to confidently use ILT in curriculum delivery

Developing Information & Learning Technology (ILT) - Full-Time & Fractional



35. I have little or no experience in the practical application of ILT

36. I am able to access & retrieve relevant subject-focused information through the internet & College network

37. Students expect me to personally provide them with the information they need to achieve their qualifications

38. ILT requires students to be more active learners. My students will be uncomfortable with this

39. My students do not know how to access the internet and College network

40. My students need new skills to be able to convert information from ILT sources into relevant knowledge & understanding

41. I know how to help students to acquire the skills to enable them to convert information from ILT sources into relevant knowledge & understanding

42. I will need to be 'gatekeeper' for students to ensure the information they acquire through ILT is relevant to their learning

43. My students cannot currently access a College computer whenever they need to

44. Learning would improve if classroom, computer, textbook, group & individual learning opportunities were gathered together in curriculum-focused centres

45. There is currently a lack of suitable software to support learning

46. I prefer to create my own learning materials, even if there are good quality learning materials available prepared by others

47. There is adequate technical provision to support any development of ILT

48. The College network is not sufficiently reliable to support any development of ILT

49. I would want to develop ILT in my teaching, even if senior management did not push its development



Developing Information and Learning Technology (ILT) at Stephenson College

No of Respondents: 36 File Reference: ILT2002A.005,006,009

1. Male 42.9% Female 57.1%

2. Full-Time 0.0% Fractional 0.0% Part-Time 100%

Statements 3 - 30 seek your views on the implications of ILT on student learning if ILT were to be developed at Stephenson College

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
3. ILT enables learning to occur at a time, place and pace convenient to the learner	30.6%	66.7%	2.8%	0.0%	0.0%
4. ILT enables learning tasks to be repeated as often as required until the student acquires the intended knowledge and understanding	22.9%	71.4%	2.9%	2.9%	0.0%
5. ILT improves learning by increasing individual learning opportunities	19.4%	61.1%	13.9%	5.6%	0.0%
6. ILT encourages students to become more active learners, "seeking" instead of "receiving" information	22.2%	47.2%	22.2%	5.6%	2.8%
7. ILT does not improve the learning process by enabling students to take more responsibility for their learning	8.3%	2.8%	22.2%	52.8%	13.9%
8. ILT, through e-mail and bulletin boards, will not improve opportunities for students to communicate with each other and with lecturers	2.8%	11.1%	27.8%	50.0%	8.3%
9. ILT will not increase the availability of information which is interesting and relevant to student learning	2.8%	2.8%	11.1%	61.1%	22.2%
10. When other students are learning independently with ILT, I will be able to provide more personal support to those students who need it	13.9%	61.1%	16.7%	5.6%	2.8%
11. ILT restricts opportunities for individual students to adopt the learning style most appropriate for them	11.1%	19.4%	27.8%	36.1%	5.6%
12. ILT improves learning, but only if used in addition to effective traditional learning methods	47.2%	41.7%	5.6%	5.6%	0.0%
13. ILT does not improve student motivation	14.3%	20.0%	20.0%	42.9%	2.9%
14. I do not know how to design, develop and use ILT	11.4%	37.1%	11.4%	20.0%	20.0%
15. As ILT is only concerned with gathering information and not its effective use, effective teaching/learning will suffer	5.6%	25.0%	22.2%	30.6%	16.7%
16. The use of ILT will mean that students will need more tutor support	8.3%	27.8%	30.6%	33.3%	0.0%
17. Students will not be able to cope with the increased information available through ILT	5.6%	19.4%	22.2%	44.4%	8.3%
18. ILT will not result in students becoming isolated and unsupported	8.3%	47.2%	13.9%	22.2%	8.3%

PLEASE TURN OVER

File Reference: ILT2002B.005,006,009

No of Respondents: 36

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
19. ILT results in too much flexibility, which will disadvantage a novice or unsophisticated learner	19.4%	22.2%	22.2%	33.3%	2.8%
20. ILT will be able to diagnose the individual needs of a student	0.0%	25.0%	22.2%	38.9%	13.9%
21. An inexperienced or weak learner may be unable to take the responsibility for their own learning expected with ILT	38.9%	41.7%	5.6%	13.9%	0.0%
22. With ILT, my contact with students will not reduce	2.8%	58.3%	16.7%	19.4%	2.8%
23. ILT is not being developed by management as a cost saving action	11.8%	20.6%	47.1%	17.6%	2.9%
24. With ILT, my workload will not increase	2.9%	25.7%	28.6%	42.9%	0.0%
25. ILT will not improve levels of student achievement	5.6%	16.7%	25.0%	44.4%	8.3%
26. I am unwilling to place my teaching material onto the College network	2.8%	13.9%	27.8%	38.9%	16.7%
27. I will only use ILT if it enables me to continue to teach in the same way	0.0%	11.1%	25.0%	58.3%	5.6%
28. With ILT, students will waste their time searching for inappropriate material and activities	13.9%	22.2%	30.6%	30.6%	2.8%

Other positive/negative effects on learning at *Stephenson College* if ILT were to be developed not covered in statements 3 - 28

29. Positive

30. Negative

Statements 31 - 32 seek your overall assessment on the effect of ILT on student learning if ILT were to be developed at *Stephenson College*

31. I believe that the development of ILT will improve the student learning experience	16.7%	58.3%	13.9%	11.1%	0.0%
32. Using ILT will not improve my effectiveness as a teacher	2.8%	11.1%	25.0%	55.6%	5.6%

Statements 33 - 50 are intended to identify issues that would need to be addressed if ILT were to be developed at *Stephenson College*

33. ILT staff development should focus on helping me to use ILT to teach my own subject	33.3%	52.8%	11.1%	2.8%	0.0%
---	-------	-------	-------	------	------

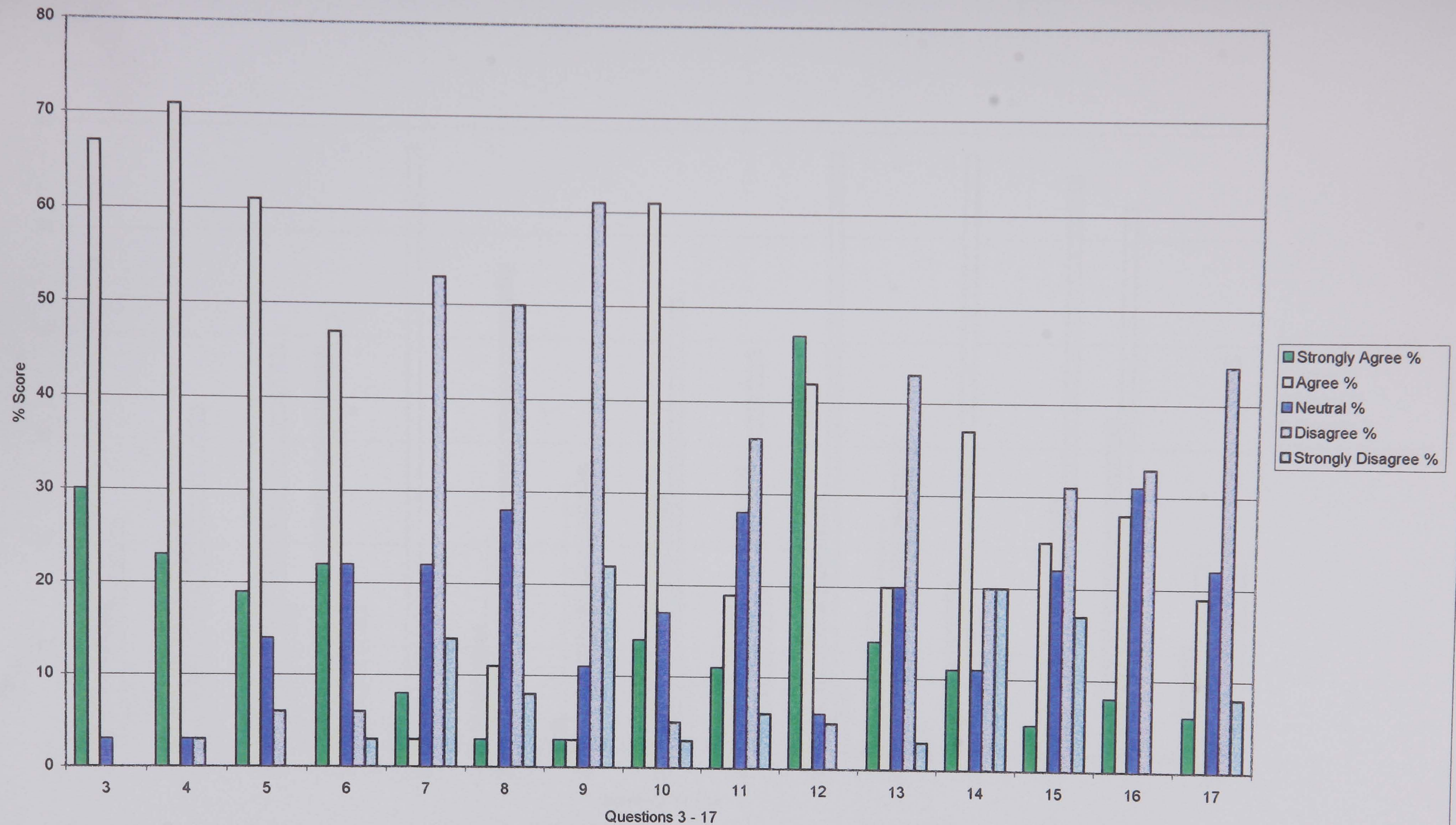
PLEASE CONTINUE ON PAGE 3

File Reference: ILT2002C.005,006,009

No of Respondents: 36

	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree
34. I do not have the skills to confidently use ILT in curriculum delivery	11.1%	19.4%	11.1%	38.9%	19.4%
35. I have little or no experience in the practical application of ILT	8.3%	22.2%	11.1%	41.7%	16.7%
36. I am able to access and retrieve relevant subject-focused information through the Internet and College network	11.1%	50.0%	16.7%	16.7%	5.6%
37. Students expect me to personally provide them with the information they need to achieve their qualifications	19.4%	47.2%	22.2%	11.1%	0.0%
38. ILT requires students to be more active learners. My students will be uncomfortable with this	8.3%	25.0%	16.7%	41.7%	8.3%
39. My students do not know how to access the Internet and College network	0.0%	16.7%	22.2%	41.7%	19.4%
40. My students need new skills to be able to convert information from ILT sources into relevant knowledge and understanding	8.3%	72.2%	13.9%	5.6%	0.0%
41. I know how to help students to acquire the skills to enable them to convert information from ILT sources into relevant knowledge and understanding	8.3%	50.0%	25.0%	11.1%	5.6%
42. I will need to be the "gatekeeper" for the students to ensure that the information they acquire through ILT is relevant to their learning	16.7%	61.1%	8.3%	13.9%	0.0%
43. My students cannot currently access a College computer whenever they need to	8.3%	33.3%	22.2%	25.0%	11.1%
44. Learning would improve if classroom, computer, text book, group and individual learning opportunities were gathered together in curriculum-focused centres	25.0%	52.8%	11.1%	11.1%	0.0%
45. There is currently a lack of suitable software to support learning	30.6%	38.9%	27.8%	2.8%	0.0%
46. I prefer to create my own learning materials, even if there are good quality learning materials available prepared by others	5.6%	11.1%	27.8%	47.2%	8.3%
47. There is adequate technical provision to support any development of ILT	2.8%	11.1%	41.7%	36.1%	8.3%
48. The College network is not sufficiently reliable to support any development of ILT	8.3%	22.2%	61.1%	5.6%	2.8%
49. I would want to develop ILT in my teaching, even if senior management did not push its development	14.3%	51.4%	22.9%	11.4%	0.0%
50. Other issues which need to be addressed if ILT were to be developed are:					

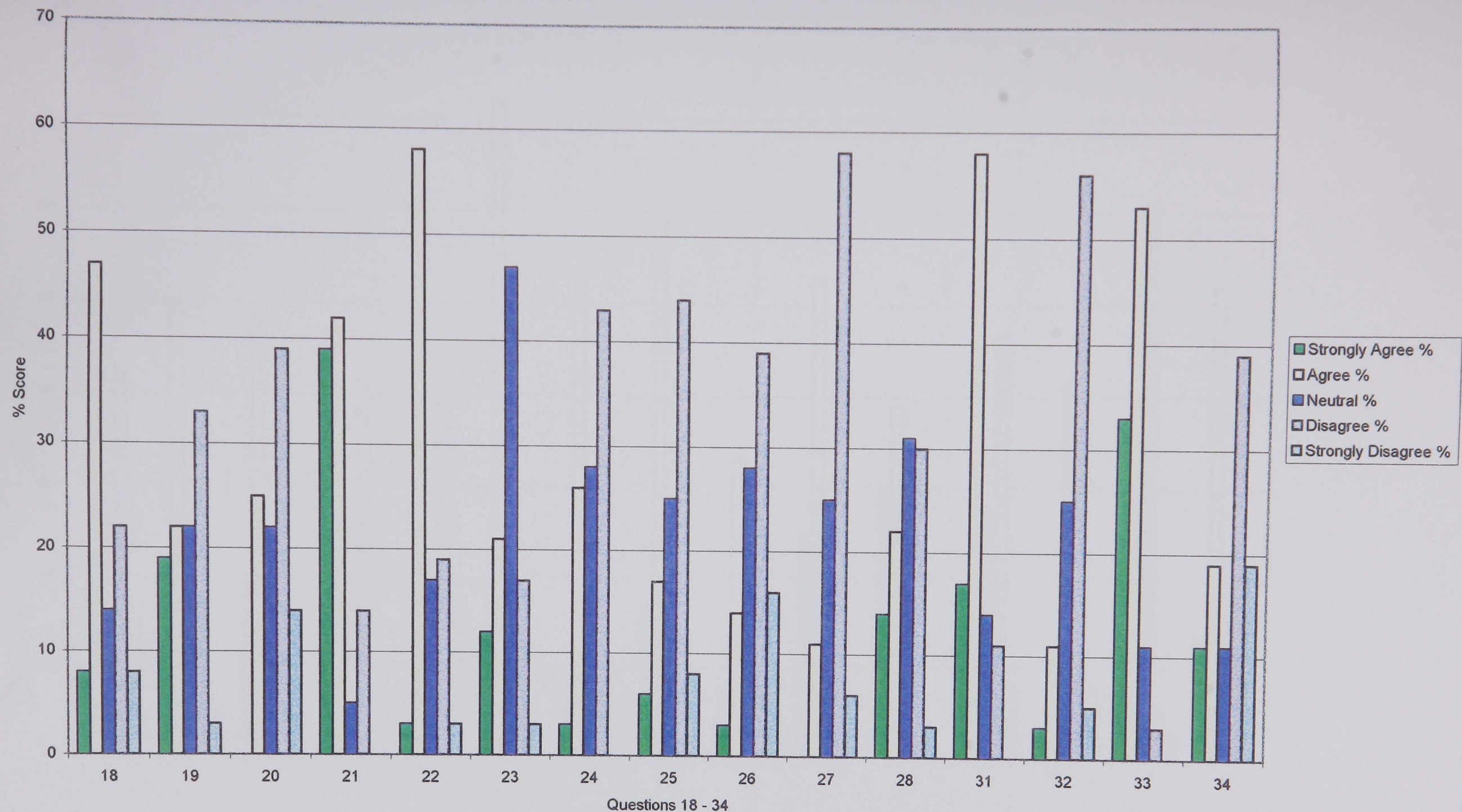
Developing Information & Learning Technology (ILT) - Part-Time



3. ILT enables learning to occur at a time, place & pace convenient to the learner
4. ILT enables learning tasks to be repeated as often as required until the student acquires intended knowledge & understanding
5. ILT improves learning by increasing individual learning opportunities
6. ILT encourages students to become more active learners 'seeking' instead of 'receiving' information
7. ILT does not improve the learning process by enabling students to take more responsibility for their learning
8. ILT, through e-mail and bulletin boards will not improve opportunities for students to communicate with each other & lecturers
9. ILT will not increase the availability of information which is interesting and relevant to student learning
10. When other students are learning independently with ILT I will be able to provide more personal support to those students who need it

11. ILT restricts opportunities for individual students to adopt the learning style most appropriate for them
12. ILT improves learning but only if used in addition to effective traditional learning methods
13. ILT does not improve student motivation
14. I do not know how to design, develop and use ILT
15. As ILT is only concerned with gathering information & not its effective use, effective teaching/learning will suffer
16. The use of ILT will mean that students will need more tutor support
17. Students will not be able to cope with the increased information available through ILT

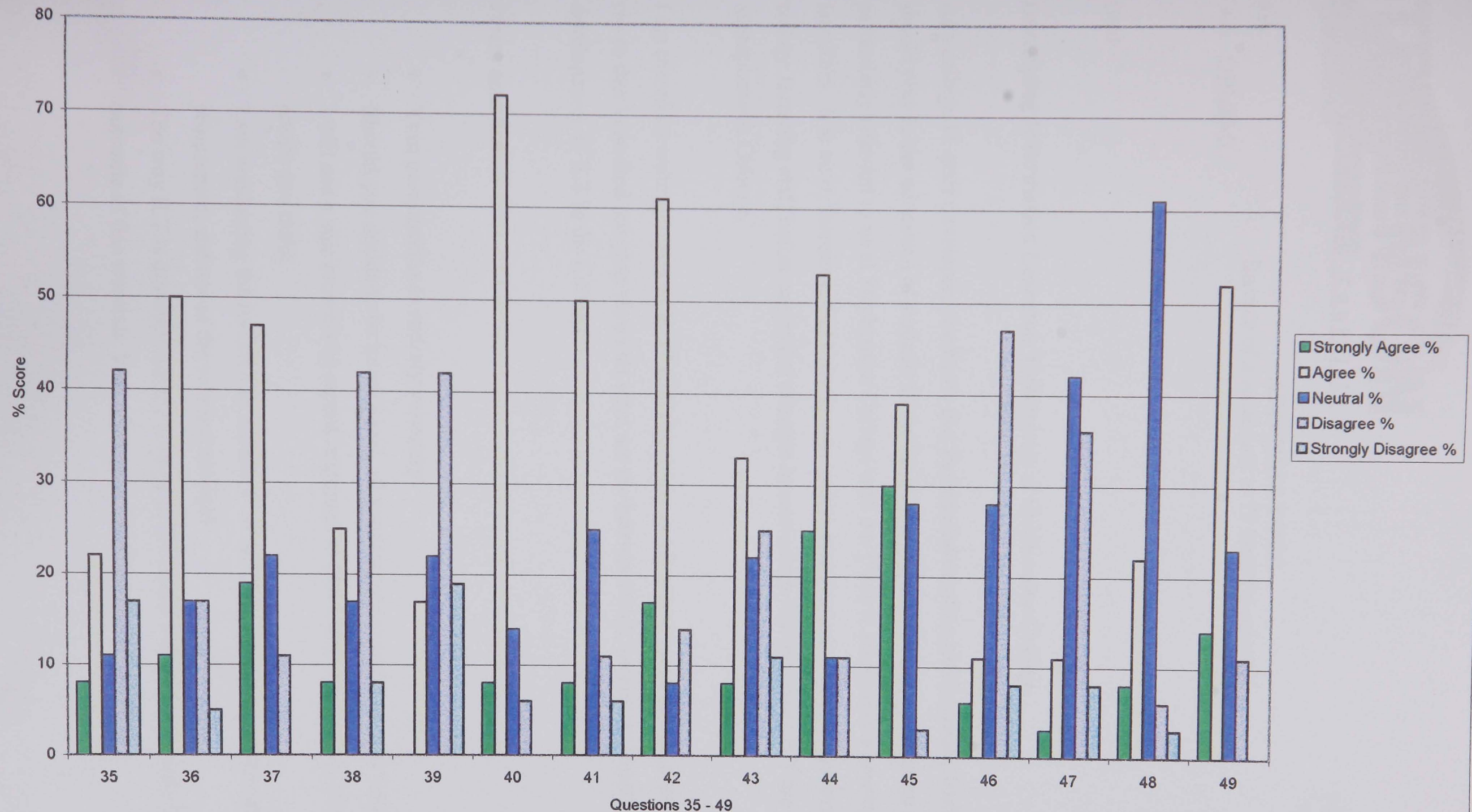
Developing Information & Learning Technology (ILT) - Part-Time



18. ILT will not result in students becoming isolated and unsupported
 19. ILT results in too much flexibility, which will disadvantage a novice or unsophisticated learner
 20. ILT will be able to diagnose the individual needs of a student
 21. An inexperienced or weak learner may be unable to take responsibility for their own learning expected with ILT
 22. With ILT, my contact with students will not reduce
 23. ILT is not being developed by management as a cost-saving action
 24. With ILT my workload will not increase
 25. ILT will not improve levels of student achievement

26. I am unwilling to place my teaching material onto the College network
 27. I will only use ILT if it enables me to continue to teach in the same way
 28. With ILT students will waste their time searching for inappropriate material and activities
 31. I believe that the development of ILT will improve the student learning experience
 32. Using ILT will not improve my effectiveness as a teacher
 33. ILT staff development should focus on helping me to use ILT to teach my own subject
 34. I do not have the skills to confidently use ILT in curriculum delivery

Developing Information & Learning Technology (ILT) - Part-Time



35. I have little or no experience in the practical application of ILT
 36. I am able to access & retrieve relevant subject-focused information through the internet & College network
 37. Students expect me to personally provide them with the information they need to achieve their qualifications
 38. ILT requires students to be more active learners. My students will be uncomfortable with this
 39. My students do not know how to access the internet and College network
 40. My students need new skills to be able to convert information from ILT sources into relevant knowledge & understanding
 41. I know how to help students to acquire the skills to enable them to convert information from ILT sources into relevant knowledge & understanding
 42. I will need to be 'gatekeeper' for students to ensure the information they acquire through ILT is relevant to their learning

43. My students cannot currently access a College computer whenever they need to
 44. Learning would improve if classroom, computer, textbook, group & individual learning opportunities were gathered together in curriculum-focused centres
 45. There is currently a lack of suitable software to support learning
 46. I prefer to create my own learning materials, even if there are good quality learning materials available prepared by others
 47. There is adequate technical provision to support any development of ILT
 48. The College network is not sufficiently reliable to support any development of ILT
 49. I would want to develop ILT in my teaching, even if senior management did not push its development



BRIDGE ROAD
COALVILLE
LEICESTERSHIRE
LE67 3PW
TEL: 01530 836136
FAX: 01530 814253

Our Ref:

APPENDIX FOUR

Sample of a letter sent to IT Staff Developers

Your Ref: DJR/ZML

Dear

Developing Information Learning Technology at Stephenson College

As a college IT staff developer, you know that the role Information and Learning Technology (ILT) should play in the education of students in the future is a major issue in the education world. It is particularly relevant to us at Stephenson College with our plans to relocate to a new college site in late 2005. It is vital, therefore, that there is appropriate consultation with, and agreement by, college lecturing staff before any major changes in curriculum delivery using ILT are adopted here at Stephenson College.

I am therefore writing to you as an IT staff developer to ask you to agree to being interviewed by me so that I can find out your views on what are the barriers which are currently impeding the development of ILT in the College?

Please note that:

- Your participation is entirely voluntary.
- Should you decide to be interviewed, all your responses will be totally confidential.
- I will use a tape recorder to record responses so that I have an accurate record of the points you make.
- I am conducting the research as a student on the Open University Doctorate in Education programme, and not as the college principal
- The way ILT is developed in the college in the future will derive directly from the outcome of this research. Your views are therefore very important.

- For the purpose of this research and your responses, ILT only includes:
 - o accessing college-developed teaching notes on the college network;
 - o accessing education software through the college network;
 - o accessing specific education websites through the Internet;
 - o accessing the Internet to find appropriate information to support student learning;
 - o using e-mail and e-conferencing to support student learning.

I very much hope that you will take this opportunity to influence the college policy on the future development of ILT by agreeing to be interviewed. Zoe Lager will contact you in a few days to find out if you do agree and, if you do, to arrange a mutually convenient day and time for the interview.

Thank you.

Yours sincerely

David Rathe

Our Ref:

APPENDIX FIVE
Letter to potential group interviewees

Your Ref: DJR/ZML

Dear

Developing Information Learning Technology at Stephenson College

As you probably know, the role that Information and Learning Technology (ILT) should play in the education of students in the future is a major issue in the education world. It is particularly relevant to us at Stephenson College with our plans to relocate to a new college site in late 2003. It is vital, therefore, that there is appropriate consultation with, and agreement by, college lecturing staff before any major changes in curriculum delivery using ILT are adopted here at Stephenson College.

I am therefore writing to ask you to join a group when the joint views of the group on identifying the barriers which are currently impeding the development of ILT in the college will be sought.

Please note that:

- Your participation is entirely voluntary.
- The focus group meeting should take no more than one hour.
- Should you decide to join the focus group, the names of the group members and their individual contributions will be strictly confidential.
- No names will be included in the record of the group's responses, which will merely summarise the views of the whole group. You will be provided with a copy of the draft record for your approval and agreement.
- I will use a tape recorder to record responses so that I have an accurate record of the points the group make.

- I am conducting the research as a student on the Open University Doctorate in Education programme, and not as the college principal
- The way ILT is developed in the college in the future will derive directly from the outcome of this research. Your views are therefore very important
- For the purpose of this research and your responses, ILT only includes:
 - o accessing college-developed teaching notes on the college network;
 - o accessing education software through the college network;
 - o accessing specific education websites through the Internet;
 - o accessing the Internet to find appropriate information to support student learning;
 - o using e-mail and e-conferencing to support student learning.

I very much hope that you will take this opportunity to influence the college policy on the future development of ILT by joining this focus group. Zoe Lager will contact you in a few days to find out if you are able to join the focus group and, if you do, to arrange a mutually convenient day and time for the interview.

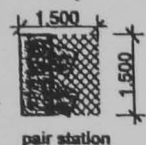
Thank you.

Yours sincerely

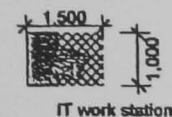
David Rathe

NOTES

General Teaching:
18 students max @
36sq m

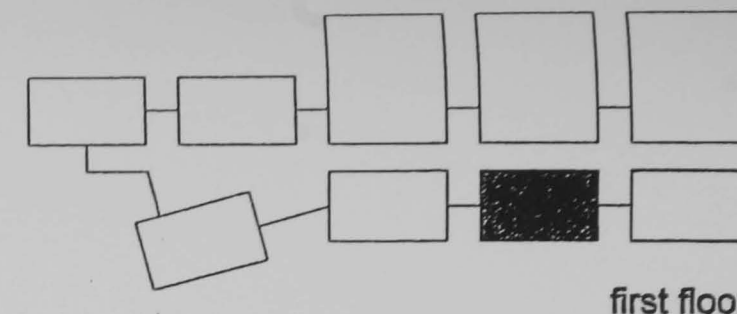
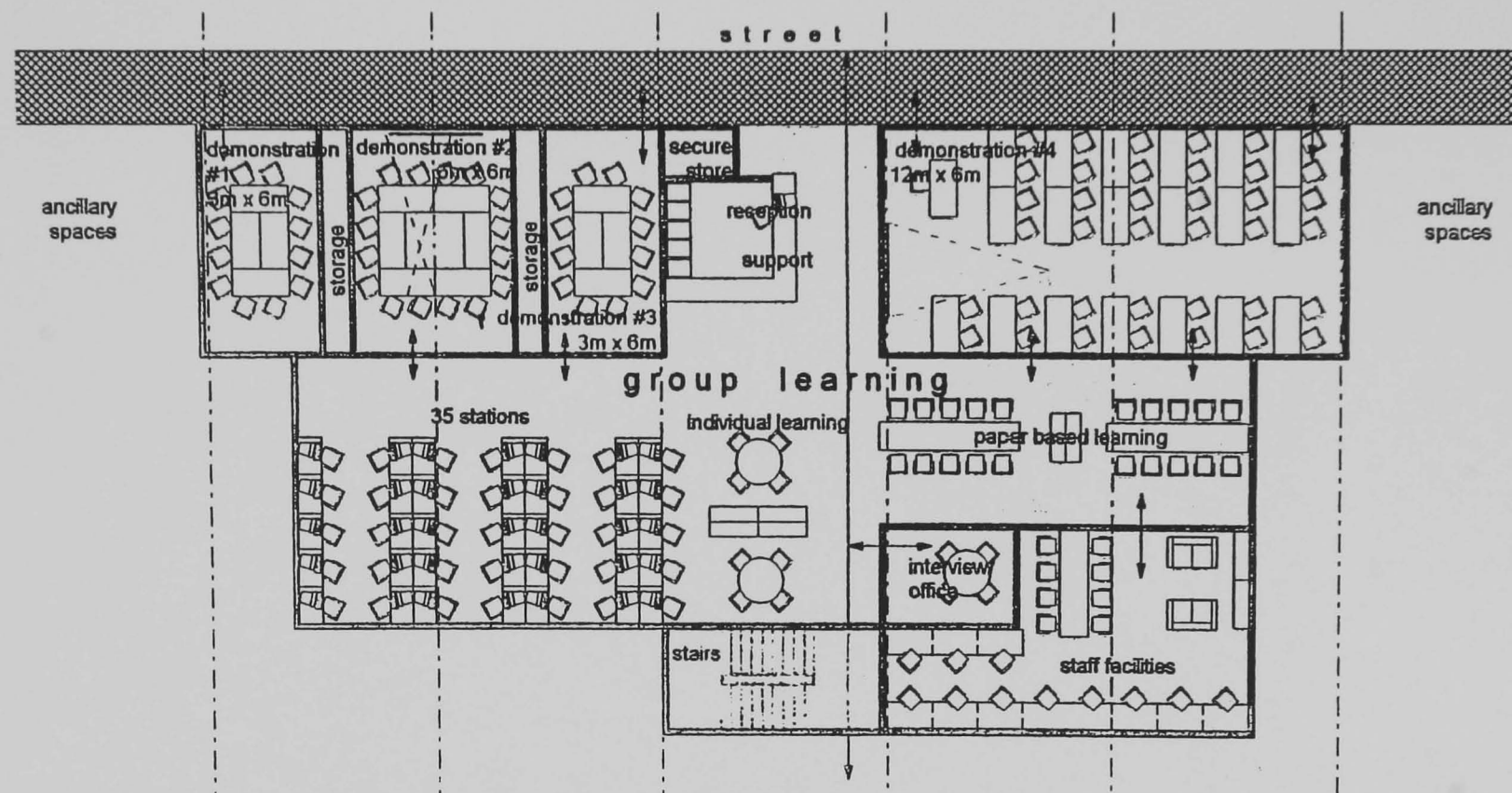


IT resource base:
15 students max



Group learning:
60 students

Additional facilities:
Head of School office
Staff room (inc
kitchenette
Staff work base
Interview
Quiet learning area

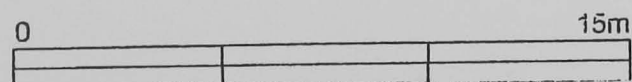


first floor

APPENDIX SIX
Plan of new college 'learning cluster'

generic cluster #4

Supporting subjects - Humanities
Childcare
Care



Total Area : 400 sq m